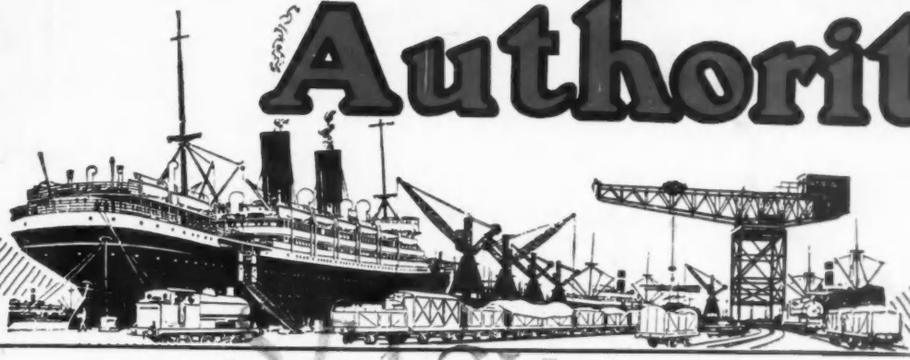
The Dock & Harbour Authority



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THE DOCK & HARBOUR AUTHORITY

No. 182. Vol. XVI. DECEMBER, 1935

Editorial

Port of East London, South Africa.

The third of our series of articles on South African Ports appears in this issue and deals with the Port of East London.

East London is situated at the mouth of the Buffalo River and the first intimation of its development as a port was in 1847, when a small stone wharf was erected, but no serious attempt was made to develop the port until 1870 when the construction of training walls was recommended, and the completion of these in 1881 gave the port of East London an entrance channel 300 ft. wide.

The greatest difficulties that had to be overcome were the heavy seas to which the mouth of the Buffalo River was exposed, and also the numerous sandbanks at its entrance. The latter have been cleared by the acquisition of dredging plant.

The port to-day is composed of two banks known as the East Bank and the West Bank. The East Bank comprises a quay 1,000 ft. long, which also forms the eastern part of the new turning basin which has recently been completed, and an extension of 500 ft. of quayage towards the sea is now under construction. The West Bank forms the western part of the new turning basin and includes an oil tanker berth, but as the West Bank has only recently been developed it has little quayage as yet.

The new turning basin mentioned above is the latest development in the Port of East London and has been devised for the purpose of accommodating the largest ocean-going vessels calling at South African Ports.

We are indebted to the South African Railways and Harbours Administration for the illustrations which appear in the article on the Port of East London.

Manchester Ship Canal Traffic.

There was a gratifying increase in the approximate traffic receipts of the Manchester Ship Canal Company during the month of October, the figure being £99,580, as against £93,265 for the corresponding month of last year. There have been increased importations of raw cotton and grain. The traffic receipts for the first ten months of 1935 amounted to £992,990, compared with £975,732 for the same period of last year. Thus there has been an increase of £17,258. If a comparison is made with 1933, the margin of increase is £74,219. These figures are a clear indication of the measure of trade recovery. The three best months of 1935 from the standpoint of traffic receipts were:—January, £102,305; April, £110,142, and June, £101,865.

Proposed Administrative Changes in Canadian Ports.

Far-reaching changes in the administration of Canadian ports is stated by *Canada's Weekly*, published in London, to be amongst the immediate plans of the newly-elected Government. The paper says:—

"The Government proposes to reform the administration of the ports, following to a considerable degree the recommendations of Sir Alexander Gibb, who made an elaborate investigation for the Bennett Government, but whose recommendations were never given effect to. Hitherto each port has had a Harbour Commission. Each was essentially a political body. When a Government changed the old Board resigned or was dismissed and a new Board of the same political stripe as the Government of the day was appointed. Experience shows that these local Boards, under the stimulus of local enterprise, committed the varous Governments to very heavy expenditure. If the ports are well equipped, the country has paid plentifully for it. What is now in view is a greater centralisation of authority at Ottawa by Government officials, with a local Commissioner or manager in each port and with one co-ordinated policy to be followed. It is believed that this will be productive of greater efficiency, and certainly of much greater economy."

The Port of London in 1935.

Early this year it was announced that the Port of London Authority were seeking Parliamentary powers for a scheme of improvement in the Royal Victoria and Albert Docks involving the expenditure of upwards of £1,750,000. The proposals consisted of developing the Royal Victoria Dock by sweeping away the jetties and constructing about 6,000 ft. of deep water quays; to build several double-storey transit sheds, to equip berths with electric quay cranes and to remodel the roads and railways. The depth of water is to be increased from 28 ft. to 31 ft. and in order to make this depth effective, the tunnels which carry the railways of the London and North Eastern Company under the water passage between the Royal Victoria and Royal Albert Docks are now being lowered.

In the Royal Albert Dock the scheme provides for the construction of a new quay 5,350 ft. in length on the north side of the dock and the increase of the depth of water from 29½ ft. to 34-ft. The passage between the Royal Albert and Royal Victoria Docks will be deepened subsequent to the lowering of the railway tunnels.

During the year good progress has been made on this development scheme in the Royal Albert Dock. Two berths have been equipped with electric cranes and similar modern equipment has been installed at two berths in the Royal Albert Dock Basin. On the north side of the Royal Albert Dock three berths each with a total quayage of 1,500 ft. have been completed.

In the Royal Victoria Dock a new quay has been built as a continuation of the existing Canal Meat Berth and has been brought into use for the Blue Star Line. Additional covered loading platforms equipped with banana conveyors, cranes, etc., have been installed to deal with the discharge of green fruit. The adjacent new orange shed which covers an area of about one acre is in design a complete departure from any other form of quay sheds in the docks of the Port of London.

On the south side of the Royal Victoria Dock the quay in front of No. 2 and No. 3 Sheds is to be reconstructed and a contract has been placed for the improvement and extension of this quay in a south-westerly direction for a distance of 750 ft. Last year the Minister of Transport formally opened Silvertown Way, the new arterial road giving access to the Royal Docks. The recent completion of a branch road between the Royal Docks and Silvertown Way provides an additional link in the road transport facilities of the port.

Notwithstanding the erection of additional timber sheds in the Surrey Commercial Docks during last year, it has been found that the demands for under-cover storage for softwood taxed the accommodation to capacity. It is therefore proposed to erect three additional sheds with a total storage capacity of 20,000 tons of softwood at the north-west corner of Lavender Dock, Surrey Commercial Docks. A barge channel 600 ft. long and 60 ft. wide is to be constructed between these sheds so as to admit of the simultaneous discharge of a number of barges. This scheme is estimated to cost £71,000 and when completed the total under cover storage for softwoods at the Surrey Commercial Docks will be increased to 271,000 tons.

The latest figures available show that the total tonnage of shipping using the Port of London continues to increase. During the year ended 30th September, 1935, shipping which arrived at and departed from the Port of London totalled 59,384,872 n.r.t. which, compared with the tonnage of the previous year, 58,377,591 n.r.t., shows an increase of 1.7 per cent.

Mersey Docks and Harbour Board

Annual Report for the Year ended July 1st, 1935

At a Meeting of the Mersey Docks and Harbour Board, held on November 21st, 1935, the annual report for the year ended July 1st, 1935, was presented by Sir Richard D. Holt, Bart. (Chairman). The report was as follows:—

"Gentlemen,

"You now have before you the Accounts of the Board for the year ended July 1st, 1935, and the Engineer's Report on our Works.

"The Accounts are quite unusually similar to those for the previous year, there being a Surplus on the year's working of £152,853 compared with £148,400 last year. The Revenue from Rates and Dues is less than that for the year ended July 1st, 1934, by the trifling amount of £4,464, but the net Revenue from our Warehouses fell off by £28,273. Expenditure, excluding Warehouses, was less by £42,939, mainly through a reduction of £43,081 in Interest charges. The final result is that we are able to place £100,000 to our Sinking Fund, as we did last year, £5,637 to our Insurance Account, £1,656 to our Renewals and Depreciation Account and to credit the Unappropriated Receipts Account with £45,560 as compared with £46,271 last year.

"The tonnage of vessels paying Dock Tonnage Rates shows a slight increase of 301,864 tons, the number being 12,186 as against 12,000 during the previous year.

"Considering all the difficulties attendant upon Overseas trade, this result cannot be considered unsatisfactory.

"During the year the Board has continued the policy of funding part of the Bond debt and, moreover, advantage was taken of the low rates of interest to convert the £9,800,000 of 3½ per cent. Stock 1935/65 into a 3¼ per cent. Stock redeemable 1970/80, an operation which saves £24,500 annually in interest and postpones the date of redemption for 15 years.

"Again there has been very little expenditure on capital account, the sum total being £181,580, of which £92,934 was the expenditure during the year on the construction of the new Sand Pump Dredger "Hoyle."

"Work on the Revetments in the Channel has proceeded steadily, and the anticipation of success which I was able to pronounce a year ago is confirmed by the results obtained during the past year. Again the Conservancy Account has been able to defray a considerable proportion of the expense from its revenue.

"During the year the North side of Bidston Dock was equipped for handling timber and the land let for that purpose. Since the end of the year it has been in regular use for the importation of timber and the traffic handled has been substantial. The development of the South side is now in hand.

"Taken all round the year under review has been singularly uneventful, but in view of the admitted general depression in Overseas trade we may congratulate ourselves on the result of the Board's work.

"Again I have to thank all our Officials for the care and ability with which they have looked after the Board's interests and promoted the trade and welfare of the Port."

The Port of Amsterdam

Statistics for the Port of Amsterdam in regard to number of vessels and tonnage and to goods traffic arrived and sailed, as compared with the corresponding figures of last year, are as follows:—

SEAGOING VESSELS AND TONNAGE.

	ARRIVALS			SAILINGS			
	No.	Per Cent.	N.R.T.	Per Cent.	No.	Per Cent.	N.R.T.	Per Cent.
Oct. 1934 ...	258		360,495		263		359,402	
,, 1935 ...	242		349,904		253		382,452	
	—16	— 6·20	—10,591	— 2·94	—10	— 3·80	+23,050	+6·41
Sept. 1935 ...	236		321,437		223		297,450	
Oct. 1935 ...	242		349,904		253		382,452	
	+6	+2·54	+28,467	+8·86	+30	+13·45	+85,002	+28·58
Jan.-Oct. '34	2,702		3,855,186		2,725		3,881,276	
,, '35	2,395		3,484,752		2,418		3,557,983	
	—307	—11.36	—370,434	— 9·61	—307	—11·27	—323,293	—8·33

SEAGOING GOODS TRAFFIC.

(In Tons of 1000 Kilos*).

	1 Import	2 Transit incl. in col. 1	3 Export	4 Transit incl. in col. 3	5 Total col. 1 & 3
Sept. 1934	283,354	70,012	140,218	55,073	423,572
,, 1935	234,349	53,298	132,259	55,478	366,608
	—49,005	—16,714	—7,959	+405	—56,964
	—17·29%	—23·87%	—5·68%	+0·74%	—13·45%
Aug. 1935	256,713	58,131	171,098	69,775	427,811
Sept. 1935	234,349	53,298	132,259	55,478	366,608
	—22,364	—4,833	—38,839	—14,297	—61,203
	—8·71%	—8·31%	—22·70%	—20·49%	—14·31%
Jan.-Sept. 1934 ...	2,730,026	521,062	1,225,988	505,164	3,956,014
,, 1935 ...	2,341,465	521,738	1,269,714	551,660	3,611,179
	—388,561	+676	+43,726	+49,496	—344,835
	—14·23%	+0·13%	+3·57%	+9·80%	—8.72%

* These figures have been taken from the monthly statistics of the Central Bureau, The Hague, Holland.

Classified according to flag the number of vessels which entered the Port of Amsterdam during October, 1935, was:—Netherlands, 130; Great Britain, 51; German, 15; Swedish, 17; Norwegian, 12; Danish, 1; French, 3; Greek, 1; Spanish, 2; Lettish, 2; Italian, 1; Estonian, 2; Russian, 5.

Vessels laid-up at Amsterdam:—1st October, 1935—10 vessels, measuring 58,708 tons gross; 1st November, 1934—16 vessels, measuring 97,587 tons gross; 1st November, 1935—8 vessels, measuring 54,682 tons gross.

Port of London Notes

London's Shipping.

During the week ended 25th October, 1,050 vessels, representing 1,035,128 net register tons, used the Port of London. Of these 515 vessels (797,706 net register tons) were to and from Empire and Foreign ports and 535 vessels (237,422 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended 1st November, 1,025 vessels, representing 1,057,718 net register tons, used the Port of London. Of these, 498 vessels (839,944 net register tons) were to and from Empire and Foreign Ports, and 527 vessels (217,774 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended 8th November, 1,150 vessels, representing 923,671 net register tons, used the Port of London. Of these 524 vessels (697,394 net register tons) were to and from Empire and Foreign ports and 626 vessels (226,277 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended 15th November, 1,175 vessels, representing 1,080,842 net register tons, used the Port of London. Of these, 502 vessels (833,193 net register tons) were to and from Empire and Foreign Ports and 673 vessels (247,649 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended 22nd November, 1,106 vessels, representing 1,061,472 net register tons, used the Port of London. Of these, 489 vessels (820,902 net register tons) were to and from Empire and Foreign Ports, and 617 vessels (240,570 net register tons) were engaged in coastwise traffic.

Tilbury Passenger Landing Stage.

Forty-seven vessels totalling 487,157 gross register tons used the passenger landing stage during the month of October.

The Port of Copenhagen.

The number of ships which entered the Port of Copenhagen during October, 1935, were as follows:—From inland ports 1,289 steam and motor ships arrived of 211,895 n.r.t., and 22 sailing vessels arrived of 4,658 n.r.t. Shipping arriving from foreign ports amounted to 718 steam and motor ships of 390,979 n.r.t., and 26 sailing vessels of 22,761 n.r.t. The total of steam and motor ships and sailing vessels arriving from both inland and foreign ports for October amounted to 2,055 vessels of 630,293 n.r.t.

Irish Harbour Matters

Cork Harbour Board: Dredging at Cove (Queenstown).

CORK HARBOUR BOARD, at a recent meeting, decided to invest £5,000 in the new Cork Corporation Stock issue.

A letter from the Department of Industry and Commerce enclosed a copy of the Harbour Rates Order fixing the minimum rates of 2s. 6d. and 1s. 3d. per ton respectively for imports and exports of raw rubber.

Regarding the proposal to dredge a channel between Spike Island and Cove, a letter was received from the officer commanding the South Irish Coast defences stating that authority had been given for the proposed work to be carried out, and the necessary funds were now available locally. As these funds were to be accounted for in the financial year ending March, 1936, it was essential that the work should be completed before that date.

The board was asked to confirm an agreement to undertake the work on these conditions.

The General Manager of the Board said that the Board's terms had been accepted, but the Harbour Engineer and Harbour Master urged that the work was essentially a summer job.

The Harbour Engineer said he had been informed by Major Hasted that the work should be completed by 1st April, or the grant would not be available.

It was pointed out by several members that the work would be of advantage in giving employment, and it was agreed to go into committee in order to have a very full discussion.

Limerick Harbour Board.

At the October meeting of the Limerick Harbour Board, the Secretary, Mr. D. McNeice, stated that there was no improvement in the financial position of the Board. If present economic conditions continued, the Board would have difficulty in meeting its obligations.

Mr. M. Doyle: If the fall in revenue continues, the question of a cut in salaries and wages must be considered.

Mr. McNeice: Yes. Our revenue has dropped by £4,200 compared with the corresponding period of last year, and I am afraid it will be down to £6,000 at the end of the year. We will have difficulty in financing the dock scheme.

Mr. J. Reidy, a member of the Dail, suggested an increase in the port dues.

Mr. Royeroft: We must bear in mind that we have to compete with other ports.

No action was taken on the suggestion to increase the dues.

Galway Harbour Extension.

At a meeting of the Galway Co. Council, Mr. J. Kennedy, County Surveyor, reported that he had attended a meeting of the Galway Harbour Commissioners when the engineering arrangements for the carrying out of the harbour scheme were under consideration. Sir Cyril Kirkpatrick and Mr. Binns, Harbour Engineer, were also in attendance. Sir Cyril, Sir John Purser Griffith and Messrs. Binns and Kennedy had instructions from the Commissioners to prepare surveys, plans, specifications, quantities and all the necessary documents.

When the question of carrying out the works was under consideration at the Commissioners' meeting, and when it was stated that Messrs. Binns and Kennedy would have charge, with the assistance of Sir Cyril Kirkpatrick, and with a resident engineer responsible to them, this arrangement was questioned. A suggestion was made that Messrs. Binns and Kennedy would not have anything further to do with the works, and that an outside engineer could be got to take over the duties of having the actual work carried out. If a suggestion of this nature was adopted, Mr. Kennedy said that he would not be in a position to exercise any control over the expenditure, and in view of the very substantial guarantee given by the Council, special supervision by the Council would be advisable.

Mr. Kennedy also stated that he had received an important memorandum from Sir Cyril Kirkpatrick, in which several matters were raised for the purpose of deciding how certain parts of the scheme were to be carried through. Any decision on these matters would affect both the design and the cost of the undertaking.

At the Harbour Board meeting, it was pointed out, an order was made referring the memorandum to Messrs. Binns and Capt. Tierney, Harbour Master. This order excluded Mr. Kennedy, and therefore excluded the County Council from having any say in whatever decisions were come to with regard to matters of vital importance.

The Council agreed that Mr. Kennedy should act as their representative on the scheme, and on the motion of Deputy Corbett, Chairman, Mr. Kennedy's appointment as engineer was confirmed.

It was agreed to urge the establishment of a conjoint committee representing the three contributory bodies in the County Council, the Urban Council and the Harbour Board.

At a subsequent meeting of the Galway Harbour Commissioners, the engineering arrangements were discussed.

Messrs. E. Corbett, T.D., Chairman Galway Co. Council, Mr. J. Cooke, Chairman Galway Urban Council; C. J. O'Flynn, Secretary Galway Urban Council; and Mr. J. Kennedy, B.E., County Surveyor, West Riding, attended as a deputation to urge the adoption of the Co. Council proposal, and the continuance of Mr. Kennedy as Consulting Engineer, with Sir Cyril Kirkpatrick, Sir John Purser Griffith and Mr. Binns, B.E., Harbour Engineer.

After a long debate, Mr. T. C. McDonogh, Chairman of the Harbour Board, said that Sir Cyril Kirkpatrick was the only engineer whom the Commissioners would recognise.

It was agreed to ask Sir Cyril to attend the next meeting to discuss the whole situation, and the proposal regarding a conjoint committee was rejected.

When the deputation was informed of this decision, Messrs. Corbett and Cooke said that they would advise their respective Councils to move for the repeal of the Galway Harbour Act.

At a meeting of Galway Harbour Commissioners, held on 2nd November, Mr. T. C. McDonogh, Chairman, declared that the present Harbour Commissioners were the sole governing body of Galway port, and should not delegate any of their powers to any other body, or share their powers with any other body. This was a reply to the request that the Chairman of the Galway County and Urban Councils should be present on behalf of contributing bodies, when tenders for the £150,000 development scheme are being considered.

Wreck of the "Hermione."

In the Four Courts, Dublin, on 31st October, Mr. Justice Hanna dismissed, with costs, an application by defendants for the discharge of an order made by the Judge in July last, giving liberty to the plaintiffs to issue a summons for service outside of the jurisdiction on the defendants.

The action was brought by the Waterford Harbour Commissioners against the British and South American Steam Navigation Company, St. Mary Axe, London, as owners of the steamship "Hermione," to recover sums amounting to £5,614, alleged to be due to the plaintiffs for lighting, buoying and dispersing the wreck of the vessel within the limits of the port and harbour of Waterford.

Mr. Justice Hanna, in a reserved judgment, described how the "Hermione" on a voyage from the Argentine to England with general cargo, in April, 1917, was struck by an enemy mine off the Wexford Coast. She was taken in tow by the naval sloop, "Daffodil," and brought into the harbour of Waterford, where she became a total wreck. The owners and their agents, having failed to remove the wreck, the Commissioners, on 11th August, 1917, took possession of the hull and cargo remaining thereon. On August 18th, the owners and underwriters abandoned the ship as a total wreck, and notified the Commissioners. On 25th March, 1929, the Commissioners entered into a contract with salvors for the removal of the wreck, and this was completed in July, 1932. Defendants had refused to pay the cost of this operation, and accordingly a summons was brought. While the defendants were within their rights in abandoning the ship as and when they did, an obligation arising under a local or private Act similar to the Wexford Harbour Act, 1904, had been regarded as in its essence as contractual, so as to bind everyone who came within the sphere of the statutory obligations. Every shipowner who brought his vessel into the Port of Waterford became liable to the regulations which bound him as by a statutory contract. All these Acts which constituted entering into the obligation or contract had been committed within the jurisdiction of the Court. The Wexford Harbour Act was a purely local Act, dealing with local affairs, confined to an area within the jurisdiction, and the balance of convenience in respect of the trial was that it should take place in Dublin.

United Kingdom Shipping Increase.

Shipping using British Ports during the 12 months ended 30th September, 1935, shows an aggregate increase of 2,783,704 n.r.t. over the corresponding period of 1933/1934, viz.: 347,073,285 n.r.t., as against 344,289,581 n.r.t.

London shipping increased from 58,377,591 n.r.t. to 59,384,872 n.r.t., representing an improvement of 1.7 per cent. The figures of the other five leading ports for the twelve months are as follows:—

	N.R.T.
Liverpool	33,129,591
Manchester	7,348,769
Hull	11,795,528
Bristol	7,051,334
Southampton	24,428,095

River Pollution: Survey of the River Tees

IN a report issued recently as Water Pollution Research Technical Paper No. 5 by the Department of Scientific and Industrial Research a detailed description is given of the results of a chemical and biological investigation of the estuary of the River Tees. This investigation, which occupied a period of about four years, formed part of a comprehensive survey of the whole of the river and its tributaries from its source on Cross Fell in the Pennines down to the sea.

The object of the survey was to obtain data regarding the effects of discharges of sewage and trade effluents on the river and the extent to which these polluting liquids should be purified before discharge if serious pollution of the river water is to be avoided. In planning the work the aim was not merely to study the conditions affecting the River Tees but to provide basic information of value in considering problems of river pollution in general. Sewage and trade effluents in a more or less crude condition are allowed to enter tidal waters from many districts on the banks of estuaries. In several of these areas there have been considerable developments of industry and increases in the population during the last few decades, with the result that questions of treatment of the polluting wastes before discharge have become matters of some urgency.

According to the report just issued, the tidal section of the River Tees extends from High Worsall to the sea, a distance of 25 miles by river. From Yarm down to Stockton in this stretch the river flows between natural banks through country largely agricultural in character; the channel is not dredged and is little used by shipping. At low water, between Yarm and Stockton, the water is fresh, but at high springs salt water travels above Stockton to within one or two miles of Yarm. Below Stockton the estuary passes through a densely-populated industrial area and the channel, which is navigable, is dredged to ensure a minimum depth of about 12 ft. at low water. In the stretch of about seven miles from Stockton to Cargo Fleet below Middlesbrough numerous industrial effluents and untreated sewage from a population of about 280,000 are discharged. As a result, large numbers of migratory fish attempting to pass through the estuary are killed each year, especially in the spring, and the value of the salmon and sea trout fishery, which was formerly considerable, has greatly declined.

Although there is a general movement of the whole body of water up and down the estuary with each flood and ebb of the tide, hydrographical measurements and determinations of salinity have shown that there are additional movements. Fresh water from the upper rivers flows down the estuary mainly in the upper layers to reach the sea and carries with it some salt water from the lower layers. At the same time salt water from the sea travels up the estuary in the lower layers. As a result of this circulatory system the water in the middle stretch of the estuary is stratified, and after heavy rain it is possible at certain positions to find nearly fresh water at the surface and almost undiluted sea water at the bottom. Water entering the tidal reaches moves relatively slowly seawards, especially if the volume of fresh water from the upper river is small. It has been estimated that the average time taken for a body of water to travel through the estuary varies from about 2½ days in wet weather to about six days in dry summer weather. Substances carried in the upper layers reach the sea more rapidly and substances in the lower layers less rapidly than indicated by these average times.

As a result of the decomposition and oxidation of sewage and industrial effluents after discharge into the river the water in the central part of the estuary is usually deficient in dissolved oxygen. The rate of oxidation of the polluting substances is greater at higher temperatures, and during hot summer months the concentration of dissolved oxygen may on occasions be as low as 5 per cent. of that in unpolluted river water; this concentration of oxygen is insufficient to support fish life. Various observations and experiments have indicated that of the reduction in the concentration of dissolved oxygen in the estuary of the River Tees, about 60 per cent. is due to the discharges of sewage and about 40 per cent. to industrial effluents.

Near the mouth of the estuary the marine fauna and flora are varied and abundant, and at Yarm fresh-water animals and plants are numerous. In the central part of the estuary there are few marine or fresh-water organisms, particularly at Newport, two or three miles below Stockton. The region containing the smallest number of species is, in the Tees, coincident with the region of maximum pollution. With the object of assessing the relative effects of pollution and of changes in the salinity of the water due to tidal action, comparative surveys were made of the fauna and flora of the estuaries of the Tay in Scotland and the Tamar in Devon. The results showed that in all three estuaries the scarcity of marine and fresh-water organisms is due largely to unsuitable tidal conditions. In comparison with the other two estuaries, however, there are few, if any, fish living permanently in the central reaches, and the numbers of certain shrimps are smaller.

Of the various industrial effluents discharged into the Tees, the most important are those from by-product coke works. The main toxic constituents of these effluents are cyanide and a group of phenolic substances, known as tar acids. Approximately two tons of tar acids and nearly one ton of cyanide are contained in the average quantity of industrial effluent discharged each day. No other toxic substance enters the estuary in large quantities. Cyanide is much more toxic than tar acids, concentration of one to two parts in ten million parts of water being sufficient to kill fish in one hour. Systematic observations and experiments during periods when salmon and sea trout smolts were migrating through the estuary to the sea proved definitely that cyanide, discharged as a constituent of effluents from coke ovens, has been the main cause of the death of large numbers of fish in the River Tees in recent years. Cyanide was frequently detected in the water of the estuary in concentrations sufficient to kill fish and the gills of smolts picked up in a dying condition were brighter than normal in colour, a characteristic symptom of poisoning by cyanide. This conclusion was an important step forward in dealing with the problem, for although various explanations had been suggested to account for the death of fish in the Tees, poisoning by cyanide had not previously been suspected.

Several methods of treatment of the effluents containing cyanide were examined. In experiments on a large scale by one method, 5,000 gallons of effluent per hour were treated with lime and with waste liquid from local galvanising works. The untreated effluent in 1 per cent. dilution killed fish in a few minutes, whereas the treated effluent in the same dilution was innocuous over a period of 24 hours. As a result of the work relating to effluents from coke ovens, it has been concluded that the discharges of such effluents into the Tees could be greatly reduced in quantity, and possibly avoided, by modifications in the methods employed for cooling and washing coke oven gas and by the utilisation of the waste liquids for quenching coke. It is understood that as a result of the investigation, installations of coke ovens to be erected in the future in the Tees area will be so designed that appreciable quantities of polluting liquids need not be discharged.

With regard to pollution of the estuary by sewage, this could be reduced by treatment of the sewage in efficient purification works or by discharging the sewage into the sea at a point some distance from the shore.

The Report is published by H.M. Stationery Office, Price 9s.

Institution of Civil Engineers and its Publications

On the 15th November the first number of the Journal of The Institution of Civil Engineers appeared.

It was in 1836 that the first volume of transactions was published by John Weale for The Institution of Civil Engineers, whilst for the last 98 years the "Minutes of Proceedings" have remained unchanged in form down to the present time and constitute a series of 240 volumes, of which the last two volumes are in the press. The Journal is the modern development of the steps that have been taken, from shortly after the time Telford became the first President of The Institution in 1820, to disseminate knowledge necessary in Civil Engineering. Whilst maintaining continuity with previous publications, it will enable the early publication of papers and the wide dissemination of the reports of the Research Committee and its Sub-Committees, which is one of The Institution's important activities.

Portraits of the first President, Thomas Telford (1820-1834), and of the President for Session 1935-36, Mr. John D. Watson, appear in the first number, which opens with a Foreword by Mr. Watson and an interesting account of the origin and progress of The Institution. Then follows the Presidential Address for Session 1935-36, which dealt with the problems of water supply, sewerage and sewage disposal during the last 50 years. Details of the work of the Research Committee, four Papers published by The Institution and a lecture on "Surveying from Air Photographs," are also included in this number, in addition to reports of the work of the Local Associations, notices and general announcements.

Further numbers will appear on the 15th December, January, February, March, April, June and October respectively, making a total of eight during the year, of which six will appear during the Session and two in the Recess.

Port of London Authority

Twenty-sixth Annual Report for the Year ended 31st March, 1935

Trade of the Port

Shipping Arriving and Departing.

THE total net register tonnage of vessels that arrived and departed with cargoes and in ballast from and to foreign countries and British possessions and coastwise during the years ended 31st December, 1919-1934, was as follows:—

	Tons		Tons
1919 ...	26,335,191	1927 ...	52,576,755
1920 ...	32,758,604	1928 ...	55,423,681
1921 ...	34,089,783	1929 ...	57,578,355
1922 ...	39,293,139	1930 ...	58,085,598
1923 ...	41,214,928	1931 ...	56,074,556
1924 ...	45,392,649	1932 ...	53,903,886
1925 ...	47,064,975	1933 ...	56,480,004
1926 ...	49,278,173	1934 ...	58,947,642

Imports and Exports.

The tonnage of imported and exported goods, foreign and coastwise, of the Port of London for the twelve months ended 31st March, 1935 and 1934, respectively, was as follows:—

	1935 Tons	1934 Tons	Percentage Increase on 1934
IMPORTS—			
Foreign	16,744,022	16,018,914	4·5
Coastwise	14,391,139	12,893,052	11·6
Transhipments	1,561,760	1,543,895	1·2
	32,696,921	30,455,861	7·4
EXPORTS—			
Foreign	3,023,641	2,800,414	8·0
Coastwise	2,002,457	1,968,448	1·7
Transhipments	1,561,760	1,543,895	1·2
	6,587,858	6,312,757	4·4
Total ...	39,284,779	36,768,618	6·8

Shipping paying River Duties of Tonnage.

The total net register tonnage of vessels (including deck cargo tonnage) which, not being within the exempted classes, was liable to river duties of tonnage, inwards or outwards, during the twelve months ended 31st March, 1935 and 1934 respectively, was as follows:—

		1935		1934		Percentage Increase on 1934
Foreign	Inwards	21,339,258		21,157,585		0·9
	Outwards	9,996,393		9,907,287		0·9
			31,335,651		31,064,872	0·9
Coastwise	Inwards	8,198,074		7,636,977		7·3
	Outwards	2,788,863		2,759,252		1·1
			10,986,937		10,396,229	5·7
			42,322,588		41,461,101	2·1

Shipping using the Wet Docks.

Of the above tonnage of vessels that paid river duties of tonnage, 58.5 per cent. used the wet docks of the Authority, compared with 59.3 per cent. during the twelve months preceding, as follows:—

		1935		1934		Percentage Increase on 1934
Foreign	Inwards	14,938,909		14,921,845		0·1
	Outwards	7,829,525		7,736,788		1·2
			22,768,434		22,658,633	0·5
Coastwise	Inwards	1,136,362		1,098,134		3·5
	Outwards	859,804		816,199		5·3
			1,996,166		1,914,333	4·3
			24,764,600		24,572,966	0·8

Shipping using the Dry Docks.

The shipping entering the dry docks of the Authority during the twelve months was 3,133,119 tons gross, compared with 3,145,368 tons in the previous year.

Goods dealt with at the Docks.

During the twelve months ended 31st March, 1935, the Authority landed or received 2,215,868 tons of import goods for warehousing or for immediate delivery, an increase of 103,272 tons, or 4.9 per cent. on the tonnage dealt with during the previous twelve months.

The stocks of goods at the end of March, 1935, in the warehouses directly controlled by the Authority amounted to 578,695 tons, as compared with 533,482 tons at the corresponding date in 1934, an increase of 45,213 tons.

The export traffic handled by the Authority on the dock quays during the twelve months amounted to 615,501 tons, being an increase of 75,623 tons on the previous year's figure of 539,878 tons.

Finance

Borrowing Powers Authorised and Exercised.

The balance of borrowing powers unexercised at 31st March, 1935, amounted to £4,692,042, as follows:—

	£	£
Total amount authorised		45,000,000
Borrowed—		
(*a*) Port Stock issued and outstanding	35,289,900	
(*b*) Port Stock purchased and extinguished...	1,300,559	
(*c*) Port Stock redeemed	17,499	
(*d*) Withdrawn from Stock Redemption Funds	3,700,000	
		40,307,958
Balance of borrowing powers unexercised ...		£4,692,042

Stock Issued.

The issue in January, 1934, of £12,961,874 Port of London 3½ per cent. Registered Stock, 1965/75, was duly completed in May, 1934.

Stock Redeemed.

In accordance with the notice given in January, 1934, £12,961,874 Port of London 4 per cent. "B" Stock, 1929/99, was redeemed on the 1st August, 1934, and cancelled.

Temporary Advances.

Temporary advances were obtained during the year, and an amount of £108,000 was outstanding at 31st March, 1935.

Capital Expenditure.

The Capital Expenditure for the year ended 31st March, 1935, amounted to £92,715.

Cancellation of Port Stock.

The powers conferred on the Authority by the Port of London Stock Regulations have been exercised by the cancellation of £225,876 0s. 10d. 3 per cent. "A" Port Stock, 1929/99, representing investments of moneys standing to the credit of certain Redemption Fund Accounts.

Stock Redemption Funds and Capital Redemption Account.

The amount standing to the credit of the Stock Redemption Funds at 31st March, 1935, was £526,248. The investments held on account of these Funds stand in the books at a value of £248,104, leaving a balance of £278,144 for investment, or to be used in exercise of Borrowing Powers.

Supplementary to the Statutory requirements in regard to Port Stock, provisional Redemption Funds are in operation for the redemption of certain expenditure for which borrowing powers have not yet been exercised, and the balance of these Funds amounted at 31st March, 1935, to £172,001.

The Capital Redemption Account now stands at £3,757,862, representing an increase of £225,876 during the year.

Working Results.

The following is a summary of the year's working:—

	£
Total Revenue	5,448,391
Total Expenditure	3,958,340
Balance of Revenue	1,490,051
Less— Interest on Port Stock and Temporary Loans, Sinking Fund Charges, &c., *less* interest, &c., receivable	1,486,321
Surplus	3,730
Balance brought forward from 31st March, 1934 ...	395,422
Leaving to be carried forward	£399,152

Port of London Authority—continued

General Fund for the Maintenance and Renewal of Premises and Plant, and for Dredging.

The expenditure during the year on account of this Fund was £81,189, and after transferring £70,000 from Net Revenue Account, the balance standing to the credit of this Fund at 31st March, 1935, was £118,271.

General Reserve Fund.

This Fund amounts to £1,000,000 and is fully invested in Trustee Securities which stand in the books at less than market prices at 31st March, 1935. Since 1922 the interest on the investments has been credited to Net Revenue Account.

Insurance Fund.

This Fund now bears the cost of all the Authority's insurance, whether the risk is carried by the Fund or otherwise. The amount standing to its credit at 31st March, 1935, was as follows:—

	£
Amount at 31st March, 1934	600,036
Added since—Income accumulated from Investments	22,176
	622,212
Less—Losses, Re-insurances, &c., during the year ...	21,144
Amount at 31st March, 1935	£601,068

The investments held on account of the Fund stand in the books at a value of £601,068, which is less than market prices at 31st March, 1935.

Auditor.

The Ministry of Transport re-appointed Lord Plender, G.B.E., of the firm of Deloitte, Plender, Griffiths & Co. to be Auditor of the Accounts of the Authority for the year ended 31st March, 1935, in accordance with the provisions of Section 109 of the Port of London (Consolidation) Act, 1920.

Clyde Navigation Trust

Additional Granary Accommodation.

AT the last monthly meeting of the Clyde Navigation Trust the Trustees decided to extend the accommodation at Meadowside Granary by 15,000 tons at an estimated cost of £71,500. Moving the adoption of the proposal, Mr. Jas. Morton, Convener of the Traffic Committee, stated that the capacity at the moment was 31,000 tons, and with the proposed extension the Granary would have a capacity of 46,000 tons. He referred to the inconvenience caused to customers by having to refuse cargoes at the Granary owing to lack of accommodation necessitating the shifting of ships to berths farther up the harbour, and the storage of grain elsewhere at greatly increased cost. Apart from easing these difficulties, he calculated there would be a saving in certain running expenses of about £1,500 per annum in addition to which if they could accommodate a further 40,000 tons per annum which they were now losing, there would be additional profits of approximately £1,700 per annum.

Commercial Manager's Half-yearly Report.

Mr. Jas. Morton also discussed the Half-yearly Report prepared by Mr. H. M. Ford, the Commercial Manager. The report states:—

"There was an increase of eight vessels from South Africa to Glasgow over the corresponding six months of 1934, representing an increased in-and-out tonnage of 70,190. Cargoes increased by 22,400 tons, consisting largely of maize imports. Despite a renewed programme in connection with citrus fruit, no deciduous fruits were shipped to Glasgow during the half-year, although 3,500,000 packages were shipped to and distributed from Southampton, while it was estimated that out of some 2,500,000 cases of citrus fruits 90 per cent. would be shipped to Southampton. Mr. Ford reported that export trade was generally satisfactory during the half-year to Australia, New Zealand and South Africa. South Africa continued to be one of our best customers. There was an increase of no less than 10 additional vessels loading out in the six months, compared with 1934, and nearly 10,000 tons of additional cargo shipped to South Africa from the Clyde. If only similar progress could be made on the highly-rated import trade (notably fruit) from South Africa as was being built up with Australia and New Zealand, our position in South African trade would, indeed, be most favourable." Mr. Morton said that with the opposition experienced in connection with South African trade, the Trust would have to consider what should be done of a more active nature with regard to securing a greater measure of South Africa's export trade to this country. Although they had progressed favourably with the decentralisation of South African fruit from Southampton, they were not making the progress they would like. He thought that they might re-consider, among other things, being represented at the forthcoming Empire Exhibition in Johannesburg next year, and he had no doubt that Mr. Ford would be submitting a concrete proposal as to how the South African situation might be handled.

Speaking on this proposal, Mr. P. J. Dollan said he did not think enough money was being spent on publicity, and he considered that there should be combined action between the Corporation, the Clyde Trust and the Chamber of Commerce in proclaiming to the world their advantages in comparison with other areas. It would, he suggested, be a good investment to send not only the Commercial Manager to South Africa, but also the Chairman of the Trust and Sir Alexander B. Swan, and that this mission should afterwards visit other parts of the Empire and strengthen the direct contacts which Mr. Ford had made.

New Members.

This year has again witnessed changes in the Clyde Trust personnel, two notable retirals being Dr. Bruce Murray who at the age of 86 is retiring from both the Clyde Trust and the Corporation, and Mr. R. J. Dunlop, another old member, who for years has represented the Chamber of Commerce. Death has removed yet another old member of the Trust in the person of the late Sir Hugh Reid. Notable among new-comers is Sir A. Steven Bilsland, ex-President of the Glasgow Chamber of Commerce, who, during his term of office actively associated himself with the commercial development policy of the Trust. Another prominent member is Sir George A. Mitchell, also an ex-President of the Chamber of Commerce.

At the annual meeting held to appoint officers and committees, Mr. W. F. Robertson was again unanimously elected Chairman for another year. Opposition was forthcoming to the re-election of Mr. W. Cuthbert, Councillor T. A. Kerr, a Corporation member being proposed in his place. In making this proposal, Mr. P. J. Dollan made a spirited attack on what he described as the control of the Trust's affairs by a clique of shipowners, and made special reference to the fact that whereas it had always been the practice for a representative of either importing or exporting interests to occupy either the chair or deputy-chair, there were now two coastal shipowners holding these key positions, and this, he claimed, was not good for the port. He suggested that the time had arrived when a representative of various public bodies on the Trust, such as the Corporation, the Chamber of Commerce and the various City councils, should be elected to one of these seats of office. On a vote being taken, Mr. Cuthbert was re-elected for another year by 23 votes against 6.

Improvements Effected at Leith Docks during 1935.

A berth in the Inner Harbour, whose equipment was quite obsolete, has been overhauled and modernised.

The front part of the shed has been removed and two lines of rails introduced, allowing of railway and crane traffic throughout the whole length of the quay.

The shed has been provided with a raised floor and the renewed berth is being used principally for the discharge of cement cargoes.

Another berth, in the Outer Harbour, has also been reconditioned. The quay wall consisted of an old timber and stone breakwater. A row of steel sheet piling has been driven in front of the old wall and the space filled up. The front of the shed has been cut back and the quay provided with two lines of rails suitable for railway and crane traffic.

The berth, which was of little use before, is now suitable for the discharge or loading of the cargoes of smaller vessels and constitutes a useful addition to the facilities of the harbour for the coasting trade.

The new electrically-operated hydraulic pumping station at the Imperial Dock having been in regular and efficient operation for more than two years, the Commissioners have decided to dismantle the old steam-driven station, and this work is now in progress.

A new 6-ton crane has been provided at the Imperial Dock, giving four cranes for the discharge of a large vessel.

The Commissioners have decided to proceed gradually with the scheme designed to enclose further areas of land and water space to be made available for shipping purposes.

Blyth Harbour, Northumberland

Photo] *Aerial View of Blyth Harbour.* [Aerofilms, Ltd.

FOR centuries the small River Blyth flowed placidly from its source to the sea, seldom disturbed by violent floods as it drains a flat pastoral district throughout its course. No castles of any size other than one or two peel-towers were found near its banks, nor was it sufficiently attractive to induce monastic communities to appropriate areas for their buildings on its banks, though these were to be found on the neighbouring river, the Wansbeck, running on a more or less parallel course a few miles to the north, but it was destined to have a big commercial future for the last two miles before entering the sea, due entirely to the fact that coal was found and workable on both sides.

Bedlington on its north bank, about three miles to the west of the present harbour has been a centre of coal mining for centuries, certainly since 1742 coal from Bedlington Colliery has been sent to London from the river, and on the south side the Plessey Colliery sent its output by means of the waggonway to a staith until sometime towards the end of the 18th century. The first regular shipments of coal in any quantity commenced about 1800, consequent upon the first winning of the Cowpen Colliery in 1794. Another pit was opened in 1848 and the coal was shipped at staiths by means of the old chaldron waggons. Until the river became sufficiently navigable to take sailing ships the coal was loaded on to keels and taken round to the Tyne where it was put on board sailing ships which conveyed it to its ultimate destination, and until a few years ago the keel was a standard measure in the port upon which the trimmers' and teemers' rates were based. The chaldron was fixed by statute in 1695 as 53 cwts. and the keel was fixed at 8 chaldrons, i.e., 21 tons 4 cwts. Both these terms have now entirely disappeared in favour of the standard measure of a ton.

The Blyth Harbour and Dock Co. which was formed in 1854 obtained statutory powers for the development of the river, but partly owing to misfortune and partly to theoretical rather than practical engineering advice their funds became exhausted and by 1880 the coal shipments had fallen to such a low ebb that the harbour was in danger of becoming practically derelict. In order to save it a firm of engineers whom they consulted advised the formation of a public trust, to be called the Blyth Harbour Commission, which enabled new capital to be obtained. When formed, the Commission were fortunate in securing the services of the late Mr. J. Watt Sandeman whose thorough and painstaking investigations showed how the channel of the river could be made navigable at a reasonable cost and so enabled dredging work to be undertaken and provide an adequate depth of water for steam ships, which by that time were taking the place of the old collier brig. From that date the progress of the river as a coal shipping port has been continuous and down to the year 1932, i.e., 50 years from the formation of the Harbour Commission—151 million tons of coal have been shipped and this quantity will have been increased by 18 million tons by the end of 1935. To make the harbour what it is to-day 25 million tons of material (rock, clay and sand) have been dredged and taken out to sea.

The two principal industries which have created the modern town of Blyth are those of shipbuilding and coal mining. The Cowpen Coal Co., the Choppington Collieries, Ltd., and the Hartley Main Colliery, all have pits within the borough, although the Hartley Main Colliery ship their coal at a private staith on the Tyne.

Shipbuilding has been carried on in the harbour for 100 years, the earlier ships being built of wood—the last one was built in 1874. Iron shipbuilding commenced about 1881 and carried on from that time until the last few years when the Shipbuilding Co. suffered like many others, although considerable sums of money have been spent in extending and improving the shipbuilding facilities.

The first coaling quay was built in 1723 and in that year 57,000 tons of coal were shipped from the Plessey Colliery; two years later the quantity was increased to 78,000 tons. This was improved by building a high level staith about the middle of the 19th Century and the next addition to the coaling facilities was made by the Cowpen Coal Co., who built their own staiths on the north side of the river about 1858. These staiths were reconstructed and set back in 1897 so as to enable the berths to be deepened and the channel widened. Further improvements took place at the south side to meet the growth of trade and the size of ships and in 1886 two additional loading berths were joined up to the existing south Side Staiths, making four berths in all. The coal trade still continued to expand due to expansion of the collieries to the north, particularly that of the Ashington Coal Co., and in 1895 new staiths were constructed on the north side of the river capable of

Blyth Harbour, Northumberland—continued

shipping another two million tons per annum, and the river was dredged so as to provide ultimately a depth of 25 ft. of water from the harbour entrance to the tidal basin. When the coal shipments reached about 4½ million tons it was thought that the possible limit of coal shipment in the harbour had been reached and a careful survey of the possibilities was made and there appeared to be a case for additional facilities up to another million tons, and jointly with the railway company what is now known as the West Staiths were built further up the river and opened for traffic in April, 1928. This brought the number of loading berths in the harbour up to twelve, ten of which are owned and worked by the London and North-Eastern Railway Co. Two berths at the West Staiths are equipped with three coaling appliances consisting of one high and one low conveyor and a gravity spout; the shipping capacity of the high and low conveyors is 500 and 800 tons per hour respectively, and the Commissioners have dredged the berths to give a depth of 30 ft. L.W.O.S.T.

To meet the altered condition of the coal trade whereby graded coal was required, further shipping facilities became necessary and the Cowpen Coal Co. constructed a loading point at the south side and sank a new pit in conjunction with it where there is the latest combination of grading and washing appliances, with belt conveyors. This quay was finished and opened for use on the 17th May, 1934.

The foresight in providing additional accommodation for coal shipping has proved itself justified, for in 1933 the coal shipments were 5¾ million tons, and in 1934 over 6¼ million tons, and there is every prospect of a similar quantity being shipped by the end of the present year.

The Commissioners still continued to improve the facilities of the port by extending the deep water area and they have in hand at the present time an extension of the tidal basin in the upper harbour adjacent to the West Staiths which will add 4½ acres of about 24 ft. of water. About one-third of the work has been completed, which has involved the construction of a sheet steel piling wall on the eastern boundary, and 250 thousand cubic yards of material have been removed and taken out to sea. It is hoped to complete the work early in 1937, which will provide waiting berth accommodation for 14 vessels.

Further improvements are in hand in providing water mains to ensure an adequate supply of fresh water which ships will be able to take alongside the quays. Two ferro-concrete water tanks have been constructed and pipes laid for this purpose.

In connection with the timber work of the staiths the Commissioners have made extensive use of Greenheart timber which it is found has very much greater resisting powers to the marine borers which quickly attack the softer classes of timber.

Other improvements are constantly being carried out, including the widening of the main channel so as to keep the river and its facilities abreast of the times and able to meet fully the requirements of the coal trade upon which its very existence depends, in fact, without the coal trade none of the other industries such as shipbuilding, ship repairing or the import of mining and sawn timber could survive.

The aerial photograph recently taken shows the whole of the staiths on the south as well as the north side, also the point where the dredger can be seen working in extending the area of the tidal basin between the West Staiths and the Cambois Road.

Bombay Port Trust

At a meeting of the Trustees of the Port of Bombay held on the 17th September, 1935, the following were the main items of business disposed of:—

An expenditure of Rs. 18,500 was sanctioned for conversion of a 300-ton dumb hopper-barge to work with the floating grab crane "Flamingo" in dredging the Bunder basins in order to increase the output of the "Flamingo." An estimate of Rs. 12,650 was approved for renewing the electric installation of the Administrative Offices.

The Board considered a report by the Marine Committee regarding the docking and undocking of vessels in Alexandra Dock by night. As the result of an enquiry in 1923, it was decided to restrict night docking to cases of emergency, in view of the risk to shipping unless a completely new system of lighting was introduced. The shipping companies have, however, recently been pressing for the withdrawal of the restriction as it entails serious inconvenience and to some extent loss of shipping to the port. The scheme now put forward is estimated to involve an initial outlay of Rs. 11,500 for an improved lighting system and provision of a lighted buoy at Middle Ground and an annual recurring cost of about Rs. 10,500 only. The Board accordingly decided to introduce night docking as a routine procedure, subject to the discretion of the Port Department in exceptional circumstances, and called for detailed estimates. It was also decided that no extra charge for night docking should for the present be levied.

* * * *

At a meeting of the Trustees of the Port of Bombay held on 15th October, 1935, the following were the main items of business disposed of.

The Revenue statement for the first half of the financial year showed total receipts of Rs. 115 lakhs, compared with Rs. 120 lakhs during the corresponding first half of the preceding year. The decrease of Rs. 5 lakhs is attributable to decline of trade, particularly in exports of raw cotton and seeds.

The Board considered tenders for the construction of a new 520 i.h.p. dock tug. The fleet at present comprises seven tugs, of which five have been in commission over 20 years; these are approaching the end of their life and are also underpowered for the greatly increased size of vessels entering the port compared with pre-war days. The Board accepted the tender of the Hooghly Docking and Engineering Co., Ltd., Howrah, amounting to Rs. 1,12,000 for delivery of the tug afloat in Bombay Harbour in May, 1936.

Tenders were also considered for loading and unloading cotton (about 1,900,000 bales per annum) at the Cotton Depot Station and for handling goods in the B.P.T. Railway General Shed at Grain Depot. The tenders of Messrs. Nensi Tejpal and Co. for the former, and of Mr. Aziz Gafur Kazi for the latter were accepted for one year, renewable at the option of the Trustees for four years.

It was decided to extend oil bunkering connections to No. 4 Berth, Ferry Wharf, for the use of the Ratnagar Steamship Co.'s new ferry service to Goa.

Amendments of the Bunders Scale of Rates were approved, subject to the sanction of Government, providing for a reduction in the wharfage on green grass and garden earth landed at the Bunders.

* * * *

At a meeting of the Trustees of the Port of Bombay held on 29th October, 1935, the following were the main items of business disposed of:—

Subject to the sanction of Government, the Docks By-Laws relating to motor vehicles within the docks areas were revised to meet modern conditions of motor transport.

The Board sanctioned an estimated expenditure of Rs. 7,900 for necessary adjustment of docks weighing machines and the purchase of new weights to comply with the provisions of the Bombay Weights and Measures Act.

* * * *

Imports and exports at the Port of Bombay:—

Quarter ended Sep.	1934-35			1935-36		
	Import Tons	Export Tons	Total Tons	Import Tons	Export Tons	Total Tons
Docks ...	377,459	461,266	838,725	380,842	335,517	716,359
,, (overside and trans-shipment)	67,870	46,116	113,986	60,959	39,050	100,009
Bunders ...	221,928	21,906	243,834	191,507	17,095	208,602
Total	667,257	529,288	1,196,545	633,308	391,662	1,024,970
Total from 1st April to 30th Sep.	1,485,737	1,152,413	2,638,150	1,438,879	966,501	2,405,380

Vessels, other than ferry steamers, hired transports, Government vessels and country craft, which entered the Port of Bombay:—

Quarter ended Sep.	1934-35		1935-36	
	No.	Net register tonnage.	No.	Net register tonnage.
Vessels engaged in foreign trade ...	205	926,414	208	929,893
Vessels engaged in coasting trade ...	270	414,793	269	410,766
Total from 1st April to 30th September	1,231	2,810,283	1,263	2,873,685

Notes from the North

Facilities of Manchester Port.

LORD ESSENDON, who presided at the annual meeting of the Manchester Liners, Ltd., Manchester, said the Manchester Ship Canal Company are contemplating a certain amount of expenditure to bring the facilities of the port more in line with present-day requirements. Trade conditions have altered so materially during the last few years, and time is now so much more important a factor than it ever was, that any expense they may be put to which will result in a saving of time to shipowners, importers, or exporters, must in the long run repay them.

"During the year a very important branch of the Manchester Chamber of Commerce has been formed, its objects being 'to promote co-operative action between all the interests concerned, with a view to fostering trade through the Port of Manchester.' This Committee has been named the Port of Manchester Committee, and consists of two representatives from the leading organisations concerned, which include the Manchester Ship Canal Company and the various trade associations, and in addition a representative appointed by the Corporation of Manchester, and a representative of the Trafford Park Estates. Mr. F. J. West, the present chairman of the Manchester Ship Canal Company, has been elected chairman, and it is hoped by co-operation and propaganda to make Manchester and the outlying districts more 'port minded.'

"There is a feeling among those connected with the local shipping industry that there is a larger volume of cargo which might properly be routed through this port. There is a population of some 10,500,000 people within a radius of 50 miles, and a large part of that area is highly industrialised. We should therefore like to appeal to those importers and exporters within that radius, and even farther afield, where other things are equal, to use the Port of Manchester. By doing this they will not only be helping their city, the Ship Canal, and the shipowners; they will inevitably be helping themselves by enabling reductions to be made in transportation costs."

Pier Reconstruction.

Wallasey Corporation requires tenders by 16th December for the reconstruction, repair and improvement of the New Brighton Ferry Pier, comprising about 250 tons of steelwork, including C.I. columns and steel-framed offices, mass and reinforced concrete slab work, excavation, piling and painting, together with all works incidental thereto.

To Appoint Harbourmaster.

Caernarvon Harbour Trust has decided to appoint a successor to Capt. Richard Jones, the marine superintendent, who is about to retire.

Trinity House, London, replying to the Trust's application for information whether there was a new system of buoyage in operation, stated:—"There has been no change in the existing uniform system of buoyage, but a revised system has been under consideration internationally for about six years, and the British Government's proposals are now before the League of Nations."

Birkenhead Dock Bridge.

It was announced at Birkenhead Town Council that the Toll Bridge at Poulton, popularly known as the "Penny Bridge," which crosses the line of docks between Birkenhead and Wallasey, is to be freed from tolls.

The bridge, the only toll bridge in Wirral and believed to be one of the last in the North of England, separates the West Float from the new Bidston Dock, and was bought some years ago by the Mersey Docks and Harbour Board, who, it is understood, receive about £1,000 annually in tolls. It belonged originally to the Vyner family when they lived on Bidston Hill, and before the War the toll for pedestrians was a halfpenny; now it is a penny. For cars the charge is fourpence (sixpence return).

Thus, in the near future, motorists will not be faced with the alternative of either paying a heavy toll or making a wide detour of the Duke Street bridge.

The Ministry of Transport have intimated that they will not recognise the road unless the Dock Board is prepared to dedicate it as one. The Board is willing to waive a considerable claim in respect of the bridge, also to forego the loss of tolls. As soon as the two surveyors of the Wallasey and Birkenhead Corporations arrive at an estimate of the cost of making the approach roads, the matter will be referred to the Ministry for the consideration of a grant.

Rhyl Foreshore Work.

Rhyl Roads Committee has under consideration a scheme to prevent coast erosion, protection against coastal changes, and the erection of groynes on the foreshore, at an estimated cost of £17,000. The surveyor has been instructed to prepare detailed plans and the estimated cost of a scheme for the erection of groynes, with a view to application to the Minister of Health for sanction of a loan to carry out the work.

Douglas Stone Bridge.

Douglas Corporation proposes to build a new Stone Bridge over Douglas Harbour. The Public Works Commission, however, has advised that any projected reconstruction should not be proceeded with this winter, as it was felt that the work could not be commenced until the beginning of May. The Borough Surveyor has been instructed to supply the Government Secretary with plans, together with details of the cost, etc.

Port Charges under Review.

Port charges are likely to be effected by the restoration of wage cuts to dock workers on 6th January.

So far as the Mersey Docks and Harbour Board and the L.M.S. Railway Company, who own the Garston Docks, are concerned, adjustments may be necessary in master porterage and other rates. In 1932 the dockers' wages were reduced from 12s. to 11s. 2d. per day. Since then, 50 per cent. of the cut has been restored, making the wage 11s. 7d., and now, by agreement with the unions concerned, the National Council of Port Labour Employers have agreed to restore the remaining 5d. on 6th January, throughout the country, bringing the total again to 12s. There is sure to be some alteration in master porterage and warehousing rates where labour is concerned.

Coast Erosion.

Mr. R. Kay Gresswell, in an address to the Liverpool Geological Society, referred to the Mersey coast erosion between Hightown and Blundellsands. The presence of the River Alt flowing along this portion of coast had the effect of preventing blown sand from the lower beach reaching the foot of the dunes and replacing that which was washed away by severe storms. As a direct result, rapid erosion had occurred during the last 25 years. For the time being, erosion was being held in check by the dumping of tin-slag, but this could be considered to be nothing more than a temporary measure, and attempts were now being made to force the Alt to enter the sea further up the coast by building a dam of tin-slag across its path and the beach from high-water to low-water mark.

Diversion of Irwell.

Salford City Council has set up a special committee to consider a scheme for the diversion of the River Irwell. One proposal is to seek the co-operation of Manchester in a scheme to make the river navigable. Ald. J. F. Crane, chairman of the sub-committee, states:—"My plan, which is supported by expert opinion, is that the river could be made navigable from the Ship Canal and would enable barges to ply up and down the river, conveying goods to and from the docks. This would not only relieve the present traffic congestion on the roads but would result in a saving of money to firms on the river banks, at whose premises cargoes could be discharged or loaded without any difficulty."

Ship Canal Company's Directors.

Manchester City Council has decided that no director of the Manchester Ship Canal Company appointed by the Council shall in future hold office for more than five years in succession nor be eligible for re-election until five years elapse after his vacation of a directorate. It has also been decided that the four senior corporation directors now serving on the Board should cease to hold office on 9th November, 1936, that the next four in order of seniority should cease to hold office on 9th November, 1937, and the remaining three on 9th November, 1938. Hitherto, no director of the Ship Canal Company appointed by the Council has been removed from the Board as long as he remained a member of the Council, and every previous attempt to modify the present system of automatically re-electing the directors once they have been appointed has been heavily defeated. There are eleven Corporation directors, whose remuneration varies from £150-£200 a year, according to the number of their attendances at committee meetings.

Notes from the North—continued

Mr. L. A. P. Warner and Mersey Dock Estate.

Mr. L. A. P. Warner, C.B.E., general manager and secretary of the Mersey Docks and Harbour Board, discussed the management and working of the Port of Liverpool in a lecture he gave to the Liverpool and District Branch of the Chartered Institute of Secretaries and the Incorporated Accountants' District Society at Liverpool.

He said there was probably no other feature in dock construction which showed so clearly as the closed dock system of Liverpool, the development necessary to meet the growing demands of ships owing to increased size. In dock construction it was useless to build for the present only; there had to be a reasonable anticipation of demands of years ahead. How that axiom had been acted on in Liverpool could be seen from the following data.

In 1878 the largest ship was 4,500 tons, but an entrance was completed for a vessel of 10,000 tons. Sandon half-tide entrance was constructed in 1901 for a vessel of 30,000 tons, although the largest vessel was then 10,000 tons, and to-day the largest vessel visiting Liverpool was 28,000 tons, but the Gladstone entrance would take one of 70,000 tons.

Liverpool provided facilities for a rapid turn-round of steamers. Taking any of the lines with a weekly service in normal times to the North American ports, four vessels maintained the service, one, say in New York, one in Liverpool and two crossing each other on the high seas, one for Liverpool, one for New York. Any of those vessels would have 5½ working days in Liverpool; they carried mails and passengers, they brought in, say, 7,000 to 8,000 tons of cargo, and carried outward some 5,000 to 6,000 tons, they re-victualled, refuelled, and they shipped passengers and mails outward. All that was accomplished in 5½ days without fail throughout the year. Failure would mean dislocation of the service.

By constant dredging and by building certain training walls they now had a minimum depth of about 24 ft. L.W.O.S.T. over the Bar and in the main approach channel to the port.

Liverpool differed from London in this respect; London had a virtual monopoly of 8,000,000 people within 15 miles of Charing Cross, whereas Liverpool had only, at the most, 2,000,000, and, as a port, soon met competition from other ports when distribution was made in areas further afield.

Over a series of years the direction of Liverpool's overseas trade had altered considerably. For instance, in the year 1900 about 43¼ per cent. of the Board's dues on ships and cargoes was derived from trade with the United States. To-day, that percentage had dropped below 15 per cent., a condition which was not surprising if consideration were given to the smaller surplus available for export from the United States, due to the growing wants of a rapidly increasing population on that side of the water. The difference had been made up by increased trade with all other parts of the world. The outstanding feature of the figures of U.K. overseas trade was the prominent position which the Port of Liverpool held in the export trade—29 per cent. of the country's total. That side of the port's trade consisted of every type of article manufactured in these islands, the largest increases over a long series of years being in chemicals, machinery and soap.

The revenue obtained from dock services had to be sufficient in the first place to pay the fixed rates of interest on stocks and bonds. If they failed to do that, their sources of supplies of money (and, it must be remembered, they required a constant flow of borrowed money) would speedily dry up. In the second place, they must make enough money to pay their expenses as a going concern; and, thirdly, they must make something additional which could be used as a reserve, either directly in the betterment of the estate, or indirectly in the reducing of charges, thereby attracting a greater volume of traffic.

In Liverpool, about 77 per cent. of the revenue was derived from dues on ships and dues on goods, the amount from ships' dues in 1934 being £1,493,957, while in the same year dues on goods contributed £966,012, the total revenue being £3,180,948.

Dues on ships were very much easier to fix than dues on cargoes. In the case of ships a more or less uniform creation, varying chiefly in size, was dealt with, but when the different varieties of cargo were considered an entirely different proposition was presented. Generally speaking, every commodity entering or leaving the port was expected to pay something for the facilities which were used in its passage through the port, but it would obviously be impolitical to impose a uniform rate. One of the principal factors taken into consideration in fixing the dues to be charged was the value of the article and what it could afford to pay. Other considerations were also involved.

On the Mersey Dock Estate there was no discrimination as between rail, road or water transport, but each was encouraged as a feeder of the port. The separate commodities entering or leaving the port paid dues at a uniform rate according to schedule, be the consignment large or small and regardless of origin or destination, though there were certain broad discriminations in the amount of dues payable as between foreign and coastwise cargoes, transhipment cargoes, etc.; those, however, were all set out in rate books, which were in the hands of the public. They did not make bargains to meet particular cases.

Some years before the war it was calculated that Liverpool served some 10,000,000 people in these islands. The number of people within a 15-miles' radius of the port was between 1,500,000 and 2,000,000. It followed, therefore, that if the latter figure were taken, say, 2,000,000 within 15 miles' radius from the port, for every ton of cargo imported, which was consumed within the city and neighbourhood of Liverpool, four tons were distributed beyond that area.

The Port of Halifax

Review of Port Traffic during the Month of August, 1935

During the month of August, 1935, the total number of vessels arriving and departing at the Port of Halifax, with comparative figures, is reported as follows:—1935—449; 1934—458; 1933—425.

The net registered tonnage is reported as follows:—1935—510,588; 1934—524,088, and 1933—460,770.

The number of vessels engaged in the Trans Oceanic Service arriving and departing during the month of August, 1935, with comparative figures, is reported as follows:—1935—101; 1934—107, and 1933—164.

The number of vessels engaged in the coastwise trade, arriving and departing during the month of August, 1935, with comparative figures, is reported as follows:—1935—348; 1934—351, and 1933—261.

Since January 1st, 1935, the total number of vessels arriving and departing at the Port of Halifax, with comparative figures, is reported as follows:—1935—3,699; 1934—3,383; 1933—3,680.

Cargo Tonnage.

The total cargo tonnage handled inward and outward during the month of August, 1935, with comparative figures, is reported as follows:—1935—137,365; 1934—139,539; 1933—177,310; 1932—110,203.

Since January 1st, the total cargo tonnage handled inward and outward, with comparative figures, is reported as follows: 1935—1,488,783; 1934—1,396,999; 1933—1,058,593, and 1932—1,040,097.

Passengers and Mail.

The total number of passengers landed and embarked at the Port of Halifax during the month of August 1935, with comparative figures, is reported as follows:—1935—7,245; 1934—1,888; 1933—2,803, and 1932—19,835.

Since January 1st, the passenger traffic, with comparative figures, is reported as follows:—1935—15,935; 1934—16,218; 1933—17,881, and 1932—42,217.

The number of bags of mail handled during the month of August, 1935, with comparative figures, is reported as follows: 1935—121; 1934—738; 1933—264, and 1932—271.

Since January 1st, the mail traffic, with comparative figures, is reported as follows:—1935—67,349; 1934—75,539; 1933—67,817, and 1932—71,959.

Vickers, Limited.

Vickers Limited announce the following changes in the constitution of their Board of Directors and of the Boards of their Subsidiary Companies, Vickers-Armstrongs Limited and English Steel Corporation Limited consequent on the death of Sir Mark Webster Jenkinson, K.B.E., F.C.A., and the acquisition by Vickers Limited of the whole of the share capital of Vickers-Armstrongs Limited:—

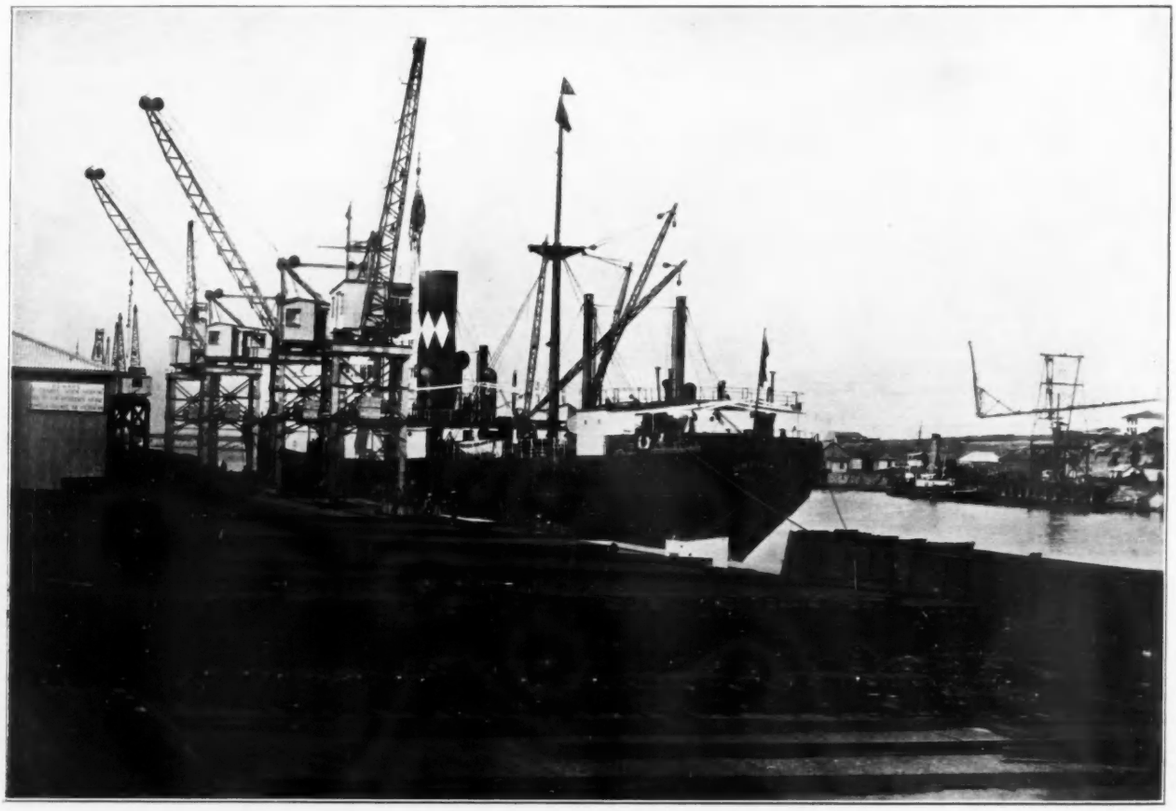
(a) Vickers Limited.—The following gentlemen have been appointed to the Board: Major-General Sir John Humphrey Davidson, K.C.M.G., C.B., D.S.O.; Mr. F. C. Yapp.

(b) Vickers-Armstrongs Limited.—As from 1st January, 1936, the Board of Directors will be constituted as follows: Commander Sir Charles Craven, R.N. (Chairman and Managing Director); General Sir J. F. Noel Birch, G.B.E., K.C.B., K.C.M.G.; Sir A. George Hadcock, K.B.E., F.R.S., D.Sc.; Mr. F. C. Yapp; Mr. J. Callander (General Manager of the Barrow Works and Naval Yard, Newcastle-on-Tyne); Mr. J. Reid Young, C.A. (Secretary of Vickers Limited).

(c) English Steel Corporation Limited.—As from 1st January, 1936, Commander Sir Charles Craven, R.N., will be Chairman of English Steel Corporation Limited in place of Colonel J. B. Neilson, C.M.G., D.S.O., C.A., and will retain his office as Managing Director. Mr. F. Pickworth will be a Director of English Steel Corporation Limited from the same date.

Port of East London, South Africa

The Harbour, East London.



West Bank Wharf.

The Port of East London, South Africa

By our Special Correspondent, ARTHUR MARKOWITZ

The following contribution is the third of our series on the Ports of South Africa

Model of East London Harbour before the construction of the Turning Basin.

History of the Port.

THE mouth of the Buffalo River was first used as a landing place for troops and stores in 1836 during the Kaffir wars of that period, and was named Port Rex after the surveyor, Mr. Rex, who was also the owner of the brig "Knysna," the first vessel to enter the river.

In 1847, another native war caused the development of the Buffalo River to be undertaken and a stone wharf was erected on its western bank. Here the original township of East London came into being, and it was not until the construction of the railway to Queenstown in the early 'eighties, which started from the eastern bank, then known as Panmure, that the settlement gravitated to that side of the river.

With the improvements which were carried out with the passing of years, including increased landing facilities, and the connecting up of the port with inland centres by rail, East London has progressed constantly. The town to-day occupies an area of approximately 14 square miles and possesses fine public buildings, extensive warehouses, and commodious hotels.

According to the 1931 census the total population of East London is well over 40,000, of whom over 20,000 are Europeans.

The rateable valuation of the town in 1931 was £5,730,102, but has since increased considerably.

Growth and Development of the Harbour.

The mouth of the Buffalo River is exposed to very heavy seas, and prior to the construction of works it was encumbered by sandbanks, which were dry at low water both in the estuary and for a considerable distance upstream. Only a narrow channel two to three feet in depth traversed these banks at low water. In fact, in 1835, and for many years afterwards, there was a wagon-track across the river.

The first serious attempt to improve the river was made in 1870, when it was examined and reported upon by Sir John Coode, on whose recommendation training walls were constructed on both sides of the entrance. This work, completed in 1884, left an entrance channel 300 ft. wide, and it was expected that the tidal scour would give the river a permanent navigable depth of about 16 or 17 ft. at L.W.O.S.T., or 20 to 21 ft. at high water. This object was, however, not achieved on account of the tidal volume of the river being too small.

A survey made in 1885 showed that the entrance was still encumbered with shoals and that there was in places a depth of only 2 or 3 ft. at low water.

The prospects of developing the port were anything but favourable, but fortunately, about this time the sand-pump came into prominence. In 1886 the sand-pump dredger, "Lucy," with a hopper capacity of 500 tons, was acquired. It succeeded in cutting a way through the immense accumulation of sand at the mouth of the river, and afterwards maintained a depth of from 8 to 10 ft. in the channel.

A year after the advent of the "Lucy," the first ocean-going vessel, entered the harbour.

The East Bank was considered the more suitable site for the construction of accommodation, and about 1,850 ft. of timber wharfage was erected there together with all necessary sheds. On the West Bank facilities for harbour craft only were constructed.

The dredger "Lucy" succeeded in maintaining a suitable depth in the river mouth, but in 1889 it was found that a bar had come into existence at the entrance to the harbour. Stronger dredging plant was acquired (the "Sir Gordon" in 1890, the "Kate" in 1897, "Success" in 1900, and the "Agnes" in 1903) and the depth over the bar gradually increased to 22 to 23 ft. of water.

At the request of the Government the harbour was visited in 1888 by Mr. J. C. Coode, son of Sir John Coode, on whose recommendation a slipway of 1,000 tons capacity was built. It was completed in 1897.

Following a number of casualties near the river mouth, a Board was appointed in 1894 to investigate, and reported subsequently that the difficulties of navigation in the channel were due to "the unequality of the displacement wave caused by the overlap of the East Pier beyond the West Training Wall."

The outcome of this enquiry was that Messrs. Coode, Son and Matthews were instructed to consider and submit a lay-out for the harbour. The scheme was, however, not adopted.

In 1897 the then resident Engineer, Mr. G. Tippett, submitted a proposal which provided for a 500 ft. extension of the South breakwater, the removal of the East Pier, and its replacement by a structure slightly to the northwards, thus widening the entrance to the harbour by about 50 ft.

Four years later, Mr. C. W. Methuen, an eminent harbour engineer, then resident in Durban, submitted plans which provided for the construction of a new East Pier with a wave basin within it and an embankment which would allow of the reclamation of a considerable area of the foreshore; the removal of the East Pier so as to widen the narrows to a minimum of 350 ft. and give an easy curve for a vessel's course when entering the harbour; and the purchase of a powerful dredger.

In regard to the internal lay-out of the harbour he recommended that the piecemeal method hitherto adopted should give place to a continuous length of quayage. This was the only recommendation adopted, and the construction of 570 ft. of the Hely Hutchinson wharf in concrete was the result.

Port of East London, South Africa—continued

Following on the decision of the Government to bridge the river near the first creek, a start was made during 1903 on the development of the West Bank hitherto used only for harbour craft. The bridge was completed on the 4th January, 1908, and four days later the first vessel was berthed at the completed West Bank quay, which had a length of 950 ft. with a depth alongside dredged to 27 ft. 9 ins. By 1910 the turning area opposite the new quay wall had been dredged to a depth of 24 ft. at low water.

In the same year Mr. Methuen reiterated his proposals of 1901, but his scheme was not sanctioned until 1914. Then, owing to the outbreak of the war, the work was postponed indefinitely.

In the meantime, however, because of the increasing number of large ships visiting the port and of the consequent necessity of providing a more sheltered entrance channel, it was decided to extend the breakwater by 500 ft., to deepen the entrance channel and to remove submerged rock there.

View of Buffalo Harbour from behind old bridge looking towards the sea.

The breakwater extension was commenced in July, 1911.

A few years later authority was given for the extension of the West Bank quay, and the provision of another 500 ft. of breakwater, making the total 1,000 ft.

In 1915 the quay had been extended to provide three deep water berths completely equipped with warehouse accommodation and electric lighting and cranes. The depth at the entrance channel was increased to 26 ft.

During the later part of the war all work was entirely suspended.

In 1920 work was commenced on the removal of the East Pier in accordance with Mr. Methuen's proposals. The serviceable material recovered was utilised to form the root of the proposed new East Breakwater. This, it had been decided, would be located on the Orient Beach.

The blockwork formation at the breakwater was commenced in December, 1923, and completed to a length of 1,269 ft. in July, 1925, its extremity pointing in a westerly direction, and being approximately 700 ft. from the South Breakwater.

Reports on the development of the harbour were submitted by Sir George Buchanan in 1923, and by Mr. M. F. G. Wilson in 1924.

In 1925 the bucket dredger, "Sir Thomas Price," one of the most powerful craft of its kind ever designed, was acquired by the Administration for expediting the removal of the Old East Pier.

Following representations by the municipal authorities, the surface of the new pier has been made suitable for promenade purposes. Parapets and seating accommodation have been provided, and the extremity of the pier has been fitted with a tower carrying a harbour entrance light.

The Turning Basin Scheme.

In 1930 a scheme was put in hand which would permit of the inner harbour being used by the largest ocean-going vessels calling at South African ports.

Briefly, the scheme consisted of a swinging area formed by the excavation of embayments in the east and west banks of the river near its mouth, which was to be dredged to a depth of 35 ft. at L.W.O.S.T., the whole forming a basin about 1,000 ft. by 1,000 ft. A concrete quay 1,000 ft. in length completely equipped with electric cranes, railway sidings, and cargo shed accommodation incorporating a modern pre-cooling store, was to have formed the east wing.

A return quay 295 ft. long was to have been constructed to connect the east wing with the Hely Hutchinson wharf.

On the west wing of the basin it was proposed to erect a timber wharf, 450 ft. in length, to accommodate ocean-going oil tankers.

Alterations to the Scheme.

During the latter part of 1934 nautical authorities questioned whether the entrance of the turning basin, as designed originally, would afford the greatest possible safety to mail and other large vessels. It was suggested that the quay at the East Wing should be extended by 500 ft. to 1,500 ft., and that a vertical return wall, terminating in a roundhead, should be built at the seaward end.

Such a scheme, in the opinion of the Port Captain, would allow vessels to take the eastern side of the channel and thereby avoid by an appreciable margin the submerged obstructions that exist in the vicinity of the west training wall.

Apart from the navigation benefits to be obtained by extending the quay wall, it was argued, the originally proposed 1,000 ft. of quayage would not permit of two large vessels being berthed together, and if used by one vessel, 300 or 400 ft. of the quay would be idle.

A further last-minute proposal was that the South Breakwater should be extended by 600 ft. to complete the work of adding 1,000 ft. to the structure, which had been commenced in 1916.

All the proposals mentioned under this heading (viz., Alterations to the Scheme) have been authorised and are either completed or under construction. The Turning Basin was flooded on 13th January, 1935.

State of Works at Present.

At the time of writing this article the 1,000 ft. of wall on the Eastern side of the Turning Basin originally authorised, have been completed, as well as 50 ft. of the 500 ft. extension sanctioned later. In addition, of the return quay wall, 295 ft. in length, connecting the 1,500 ft. quay with the Hely Hutchinson wharf adjoining (upstream), 200 ft. have been built.

As regards shore facilities, work on the construction of cargo sheds is well in hand. Six hundred cubic yards of excavations for the building of the pre-cooling store has been completed and the placing of concrete therein is progressing. Five electric cranes have been erected on the new quay.

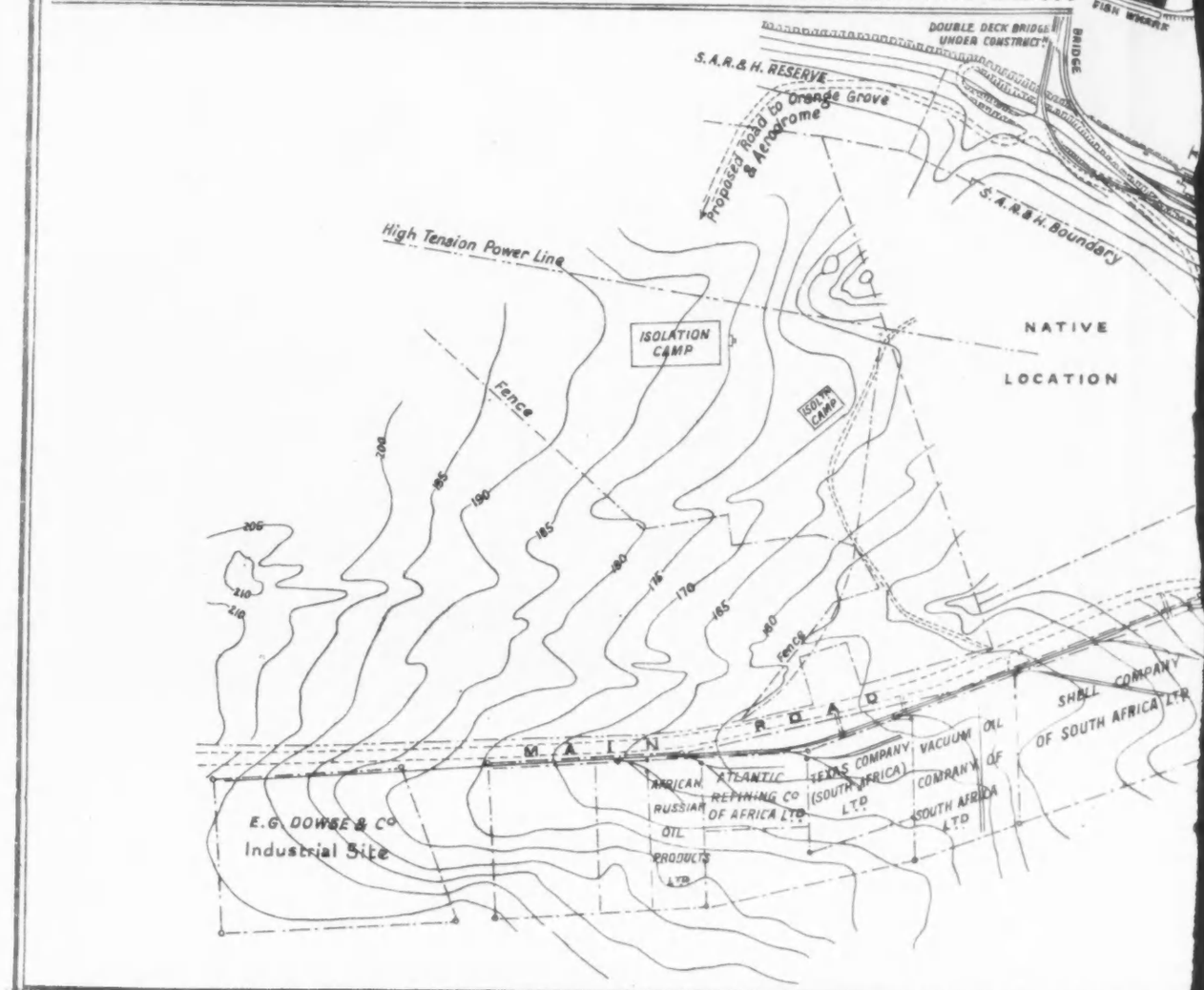
General Description of the Port.

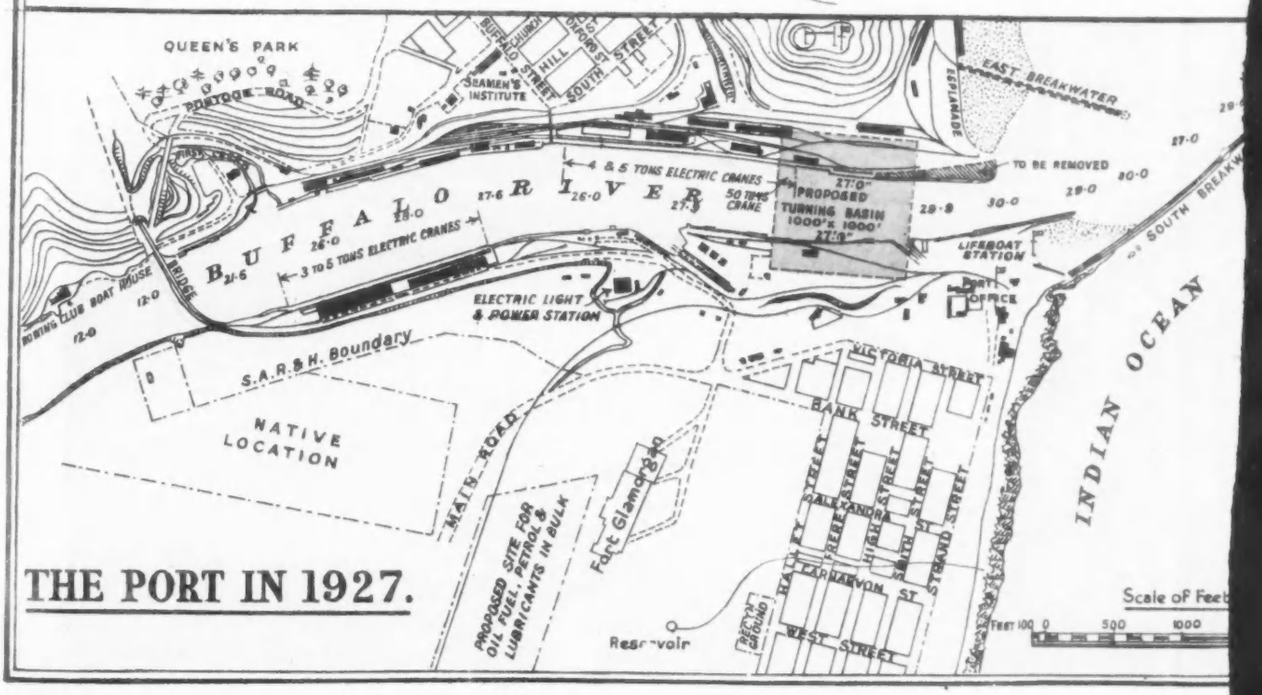
The Port of East London, South Africa's only major river harbour, is situated between Port Elizabeth and Durban. Its geographical location is Lat. 33° 02′ S.; Long. 27° 55′ E. The harbour is formed by the mouth of the Buffalo River, which is exposed to tremendous seas on an open seaboard without any shelter. In spite of these drawbacks, however, the Port of East London—the only port in the British Empire named

PORT OF EAST LONDON

(SOUTH AFRICA)

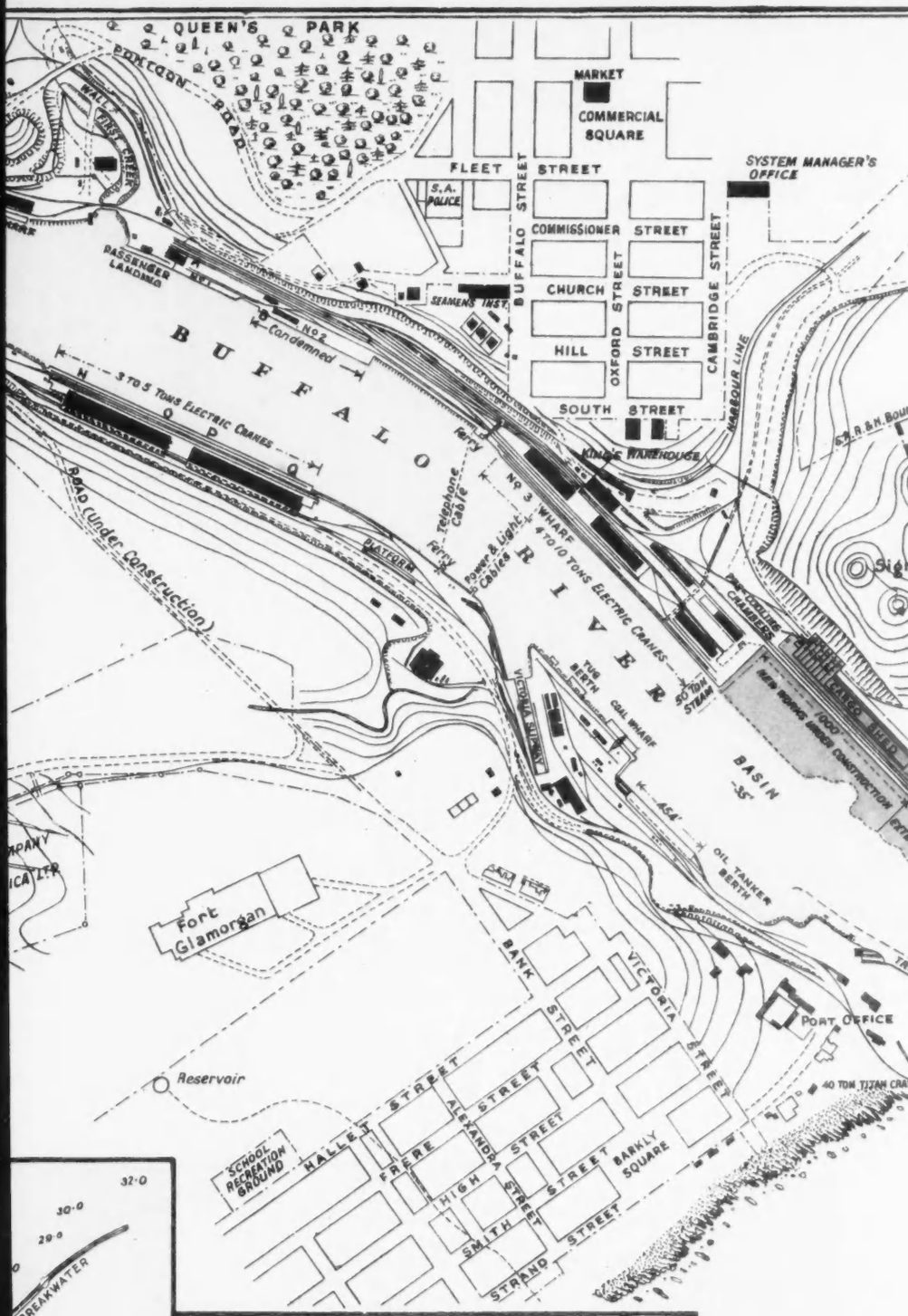
UNDER THE JURISDICTION OF THE SOUTH AFRICAN RAILWAYS & HARBOURS ADMINSTN

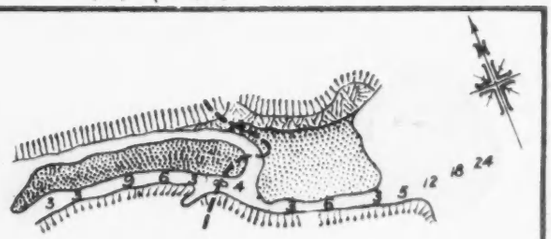




THE PORT IN 1927.

OCK AND HARBOUR AUTHORITY, DECEMBER, 1935





MOUTH OF BUFFALO RIVER IN 1835.

Showing sandbanks which were dry at low water, and the wagon track, shown thus---, which existed then and many years afterwards across the river.

NOTE;-

FEET 100 0

WARD & FOXLOW LITHO. HARCOURT ST. MARYLEBONE W

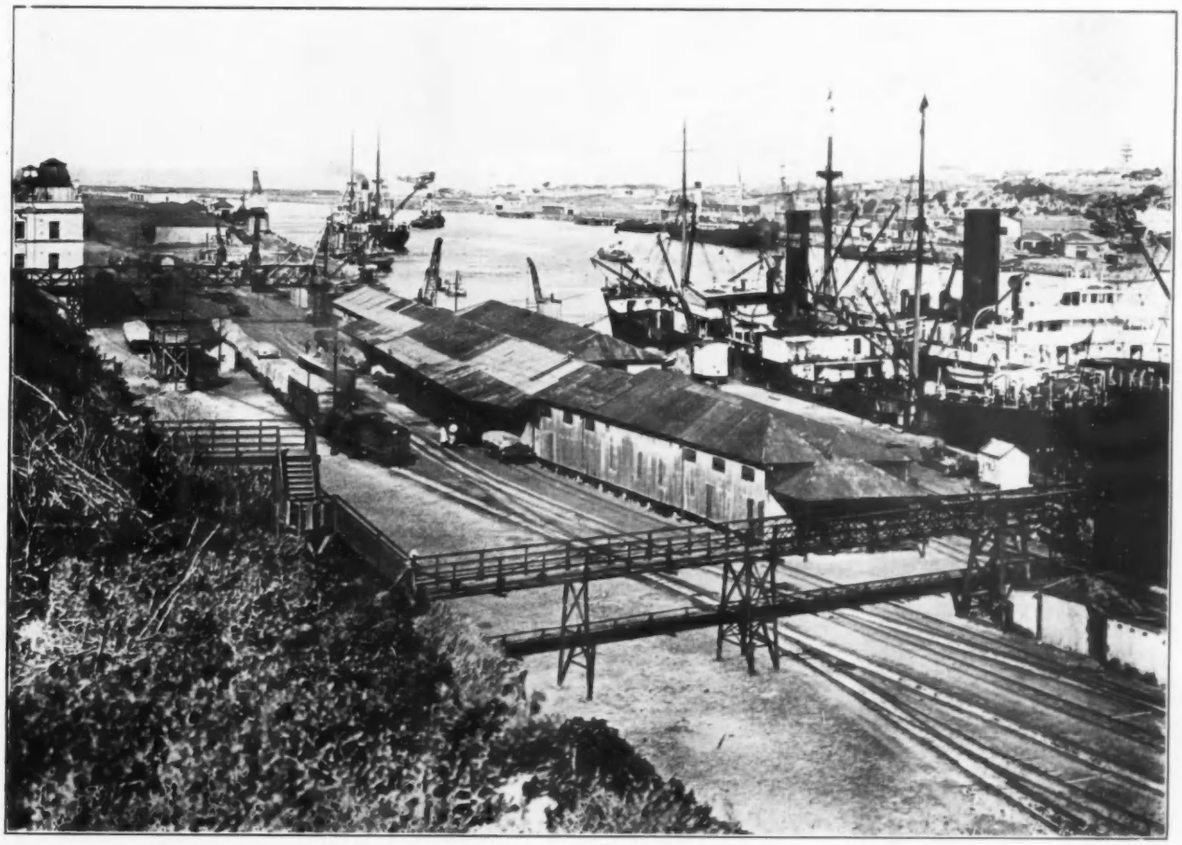
NOTE;- New Quays & Sheds in hand or proposed coloured RED
New Deep Water Areas " " " Dk BLUE

Scale of Feet.

0 500 1000 1500 2000 FEET

Port of East London, South Africa

End of East Breakwater past which a mail boat is leaving the Harbour.



Buffalo Harbour, East London.

Port of East London, South Africa—continued

after the great Metropolis—is to-day one of the finest and safest harbours in the Union and stands as a triumph of engineering skill over exceptional difficulties, as well as a credit to the Governments of the old Cape Colony and of the Union of South Africa.

The harbour is entered through a channel that has been dredged to a depth of 28 ft. 6 ins. at low water. Facilities for the loading and unloading as well as for the storage and dispatch of goods have been provided on both sides of the river.

The East Bank.

A quay, 1,000 ft. long, forming the eastern part of the new Turning Basin, has recently been completed, and an extension of 500 ft. towards the sea is now under construction. Adjoining the Turning Basin is the Hely Hutchinson quay, and the No. 3 wharf, which has recently been reconstructed. No. 1 wharf, and a fishing wharf, further upstream, complete the quayage on the Eastern Bank.

Shed and Storage Accommodation.

Apart from the sheds and stores at present under construction, the shed floor space at present available is 221,054 sq. ft., of which 113,054 is on the East Bank and 108,000 on the West Bank.

The shed capacity on the East Bank is 1,537,534 cub. ft., and on the West Bank, 1,836,000 cub. ft., making a total of 3,373,534 cub. ft.

In addition, there are 10 acres of open storage ground for rough goods.

Bulk Petrol and Paraffin Storage.

The great Oil Companies trading with South Africa, viz., the Shell Co., the Vacuum Oil Co., the Texas Co., the Atlantic Refining Co., and African Russian Oil Products, Ltd., have made East London a depot for bulk storage of petrol and oil, and have erected their own structures for the purpose near the West Bank. These sites are connected with the reservoirs within the harbour area by rail and road, the latter also being privately owned.

On the West Bank there are eleven petrol tanks of an aggregate capacity of 7,546,629 gallons, and ten paraffin tanks of an aggregate capacity of 4,704,801 gallons.

West Bank Wharf.

The West Bank.

Apart from the recently completed Oil Tanker berth, which forms the western part of the Turning Basin, and the West Quay, this more recently developed bank has little quayage.

A small coal wharf and a tug-berth adjoin the Turning Basin, and near it the Victoria slipway is situated.

Particulars of Wharfage

East Bank.

No. 1 wharf on the East Bank is 650 ft. in length with a depth alongside of 10 ft. at L.W.O.S.T. It has no cranage.

No. 3 wharf is 1,180 ft. long, the river alongside has been dredged to a depth of 32 ft. The wharf is fitted with one 10-ton electric crane, and one 5-ton electric crane. There are also three electric cranes with a lifting capacity of 4 tons each.

The East Quay (Hely-Hutchinson) has a length of 433 ft. with a depth alongside of 27 ft. 9 ins. It is equipped with one 50-ton steam crane that has a working radius of 42 ft. One 5-ton and three 4-ton electric cranes have also been fitted.

The Fish Wharf is 200 ft. in length with a depth alongside of 20 ft.

The New Quay, constructed under the Turning Basin Scheme, is 1,000 ft. long, and is at present being extended to 1,500 ft. The depth alongside this quay is 35 ft. at L.W.O.S.T. Electric cranes are being installed on it, and five have been erected at the time of writing.

West Bank.

The West Quay has a length of 1,500 ft. with a depth alongside of 27 ft. 9 ins. at L.W.O.S.T. The quay is fitted throughout with electric cranes, the biggest, of 20-ton lifting capacity, has a working radius of 47 ft. There are also two 5-ton cranes, and ten with a lifting capacity of three tons.

The Oil Tanker Berth is 454 ft. long, and the depth alongside it at low water is 30 ft. No cranage is provided.

The Ballast Jetty is 95 ft. long with a depth alongside of 21 ft. It is fitted with one 3-ton Temperley transporter.

New Pre-Cooling and Shed Facilities.

Immediately behind and alongside the quay wall at the eastern side of the Turning Basin a combined scheme of pre-cooling facilities and cargo shed accommodation is under construction. The cooling chambers occupy a length of 270 ft., along, but set back 80 ft. from, the wharf face, on a platform, situated on the first-floor level. The ground floor is taken up by a section of the cargo shed, being a portion of the 830 ft. overall length of the building. Railway trucks containing perishables will be run up an inclined way along the face of Signal Hill to the level of the first floor at the back of the chambers, and after discharge will proceed down on the far side.

This arrangement will obviate the use of lifts as well as double handling, and will facilitate movement by making use of the natural advantages of the hillside. The capacity of the pre-cooling chambers is 1,500 tons.

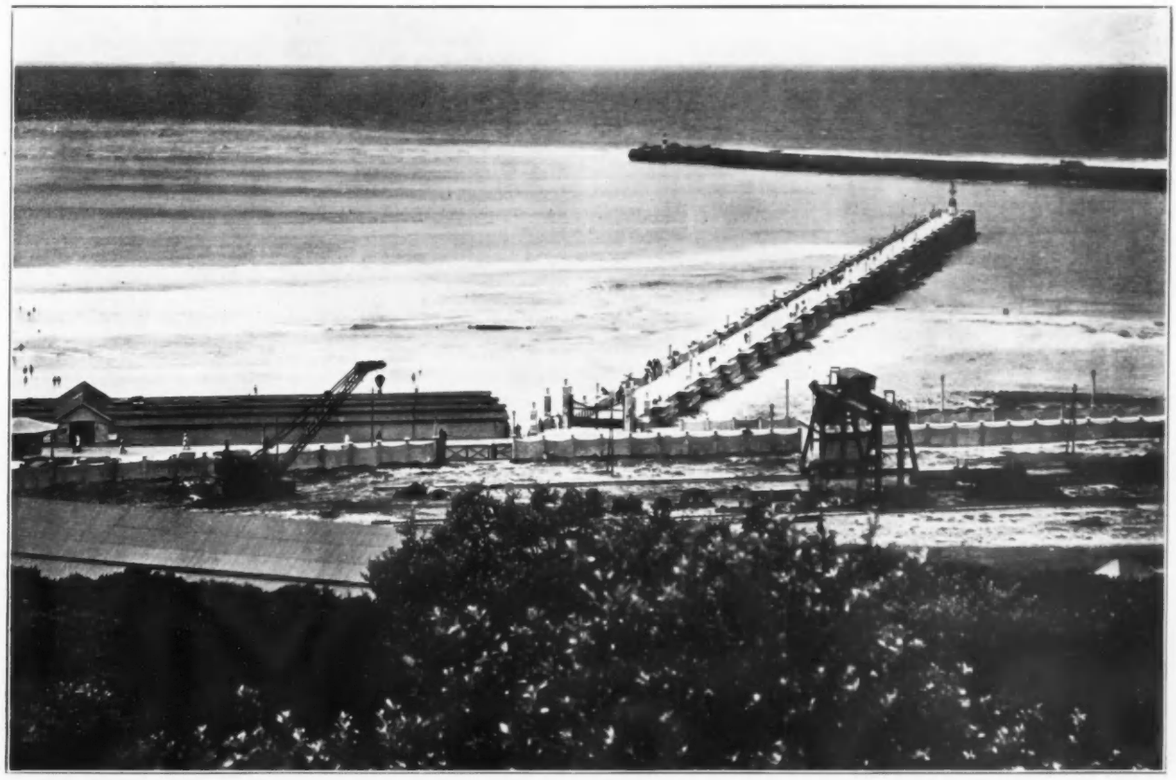
Railway Communication.

The Port of East London is connected by rail with all important Union centres, South West Africa, Portuguese East Africa, the Rhodesias, Portuguese West Africa, and the Belgian Congo.

Traffic communication between the eastern and western banks of the Buffalo at the harbour was originally established near what is known as First Creek by means of a pontoon, and some 30 years ago the river was spanned by a combined road and rail timber trestle bridge. This structure left the river bank from the east side at right angles to the stream, but on nearing the western shore it curved slightly to the left to meet the railway approach on that side. It carried only a single road with a passing place in the centre, the railway also

Port of East London, South Africa

Construction of Turning Basin, West Bank.



Entrance to the Harbour showing the East and South Breakwater, seen from the Orient Beach.

Port of East London, South Africa—continued

using the same bridge surface. The delays to both forms of traffic became of late highly inconvenient and costly, and the construction of a new bridge was decided upon.

The new bridge is one of the largest works of this description to have been undertaken by the Railway and Harbour Administration in recent years. The bridge was officially opened on the 20th February, 1935.

Generally, road and rail traffic carried on one bridge pass on the same level, but the new Buffalo River Bridge is unusual, in so far as South Africa is concerned, in that it is a "double-decker" with the railway track below the roadway. Another interesting point is that the railway track passes straight from a tunnel on to the bridge.

Structurally, the bridge consists of nine road spans, each of 55 ft. length, supported on columns; five rail spans of similar dimension on concrete piers, and three main combined road and rail spans 160 ft. each, which are supported by piers of 14 ft. diameter concrete cylinders sunk to rock. Incidentally, the sinking of these cylinders proved one of the most difficult portions of the work.

50-ton Steam Crane.

The overall length of the bridge is nearly 1,000 ft., and the railway track is 35 ft. above low-water level.

The roadway, which is 22 ft. wide with 4-ft. pavements on either side, is 22 ft. above the railway. The weight of the steelwork is approximately 1,800 tons.

The facilities offered by the new bridge have done much to improve communication at the port.

Shipping.

During the past year traffic at the Port of East London has increased considerably. A total of 704 vessels, of which about 500 were coal-fuelled steamers, called at East London, as compared with 654 vessels during 1932-33. The gross register tonnage rose to 4,721,467 in 1933-34, from 4,465,756 in 1932-33.

The number of vessels which entered the harbour was 589, an increase of 48 as compared with 1932-33, and of 127 as compared with 1931-32. The increase is attributed to the amendment of the harbour tariff which came into operation on the 1st July, 1932.

During the year ending 31st March, 1934, the greatest draught of any vessel entering or leaving the harbour was 28 ft. 6 ins., whilst the gross tonnage of the largest vessel dealt with at the quays was 11,591 tons.

With the completion of the new Harbour works, the aim of the original scheme commenced in 1930 has been realised, and the largest ships trading in South African waters can now be accommodated in the harbour.

Port Finances.

The total expenditure on the harbour amounted to £1,360,116 up to 31st March, 1924, and £1,455,567 up to the same date in 1930. Comparatively little was spent on the harbour until late in 1929. During the period 31st March, 1930, and 31st March, 1934, when the Turning Basin Scheme and other important works were carried out, the sum of £293,516 was spent. The total expenditure on the East London harbour to 31st March, 1934, is £1,749,083. The expenditure for each year since 1929 is given in the following table:—

Spent During Year: £			Amounting at 31st March to:	£
8,790	...	...	(1930)	1,455,567
43,802	...	...	(1931)	1,499,369
26,882	...	...	(1932)	1,526,251
81,652	...	...	(1933)	1,607,903
141,180	...	...	(1934)	1,749,083

The cost of the latest works sanctioned is as follows:—

Extension of C. W. Malan Wharf by 500 ft. ...	£74,000
Enlargement of the C. W. Malan (Turning) basin by excavating the seaward end of the basin on the West Bank side of the river ...	£11,100
Extension of breakwater by 600 ft.	£150,000
Total	£235,100

NOTE.—The enlargement of the C. W. Malan basin has been decided upon for the provision of additional area for the safe turning of vessels when the oil tanker wharf is occupied.

Repairing Facilities.

The port possesses a slipway with a capacity of 1,000 tons dead-weight. The length of the cradle is 200 ft.

Harbour Craft.

The port is equipped with eleven lighters of an aggregate capacity of 1,504 tons. With the completion of the new Turning Basin the costly system of lighterage will gradually be abandoned at East London.

The port is served by two powerful tugs and one small craft. One of the large tugs is fitted with wireless, and both with salvage appliances. A new first-class tug, the "W. H. Fuller," has been purchased to deal with the heavier class of shipping.

Cargo dealt with at East London.

At the time of Union, during 1910, a total of 307,155 harbour tons of cargo was landed at East London, whilst 105,765 harbour tons were shipped, making the total of cargo handled 412,920 tons.

In 1925 the respective figures for cargo landed and shipped still very closely approached those of 15 years ago, but since 1926 the weight of goods landed increased annually until it reached a record in 1930 with 549,269 tons. Exports, on the other hand, remained fairly equal at an average of 180,000 tons a year. In 1931 the depression made itself felt strongly, in as far as the trade of the port was concerned, imports falling to 332,357 tons, and shipments to 155,339 tons. The lowest level of trade was experienced for the year ending March, 1933, when only 223,187 tons were landed.

During the last year (ended 31st March, 1935) the tide turned and cargo landed once again increased to 303,978 tons, but cargo shipped only amounted to 127,699 tons.

Importations reflected increases under practically every head, the more conspicuous being: General merchandise, 22,065 tons; oil fuel, 21,190 tons; railway material, 17,002 tons; timber, 11,467 tons; and grain, 9,026 tons. The increase in grain was brought about by an importation of 8,206 tons of Argentine maize by the Government to relieve distress in drought-stricken areas as a result of the failure of the local crops.

The weight of cargo shipped showed a decline as compared with 1932-33 (from 184,453 in 1932-33 to 127,699 in 1933-34), and this was mainly due to smaller exports of wool, citrus fruit and eggs.

Drought accounted for the decrease in wool and eggs, whilst frost was responsible for the decrease in citrus fruit. The export of dairy produce was similarly affected by the drought.

A development worthy of note was the increase in the export of frozen beef from Rhodesia, 25,516 quarters having been shipped during the year. A trial shipment of 533 quarters of chilled beef from the Eastern Cape was also made.

The following are the particulars of cargo landed and shipped during the year ending 31st March, 1934 (in harbour tons at 2,000 lb.):—

Port of East London, South Africa

Entrance to the Harbour.

West Bank Wharf.

Port of East London, South Africa—continued

CARGO LANDED.

	1933-34	1932-33	Increase (x) or Decrease (—)
General Cargo ...	138,519	116,454	22,065 x
Timber	29,641	18,174	11,467 x
Grain	10,660	1,634	9,026 x
Other Produce ...	116	158	42 —
Coal	83	—	83 x
Railway Material	24,598	7,596	17,002 x
Oil Fuel	100,361	79,171	21,190 x
Total ...	303,978	223,187	80,791 x

CARGO SHIPPED.

	1933-34	1932-33	Increase (x) or Decrease (—)
General Cargo ...	4,815	12,667	7,852 —
Timber	140	131	9 x
Produce ...	16,547	12,883	3,664 x
Wool	101,206	152,340	51,134 —
Fruit, Citrus ...	4,636	5,608	972 —
Fruit, Other ...	1	—	1 x
Coal Bunkered ...	354	261	93 x
Total ...	127,699	184,453 (incl. 563 tons maize).	56,754 —

NUMBER OF PASSENGERS LANDED AND EMBARKED.

	1933-34	1932-33	1931-32
Landed	6,682	5,833	6,079
Embarked	7,047	6,062	6,478

Harbour Administration.

The Port of East London is owned and managed by the Government. The particulars of its administration are identical with those of Cape Town, and everything said there applies also in the case of East London.

Latest Trade Figures.

November, 1934.—Cargo landed, 36,344 harbour tons; cargo shipped, 10,966 harbour tons.

Landed.—Railway material increased by 5,941 tons, general merchandise by 4,532 tons, and oil fuel by 3,851 tons, but timber decreased by 1,577 tons. Shipped.—Wool declined by 8,826 tons and produce by 278 tons (as compared with the corresponding month of 1933).

December, 1934.—Cargo landed, 36,854 harbour tons. Cargo shipped, 11,840 harbour tons.

Landed.—Timber increased by 4,621 tons, railway material by 3,091 tons, and fish by 219 tons. Grain decreased by 8,305 tons, general merchandise by 1,190 tons, and oil fuel by 1,617 tons. Shipped.—Wool decreased by 2,480 tons, and produce by 368 tons (as compared with the corresponding month of 1933).

January, 1935.—Cargo landed, 35,440 harbour tons. Cargo shipped, 10,165 harbour tons.

Landed.—General merchandise decreased by 31 tons. Increases were: Timber, 785 tons; railway material, 5,603 tons; oil fuel, 7,301 tons, and produce 2 tons. Shipped.—Produce decreased by 265 tons, and wool by 4,473 tons. Fruit increased by 8 tons, timber by 18 tons, and general merchandise by 18 tons (as compared with January, 1934).

February, 1935.—Cargo landed, 28,836 tons. Cargo shipped, 17,625 tons.

Landed.—Increases were general cargo 11,825 tons and railway material 2,819 tons. Oil fuel decreased by 12,233 tons, timber by 750 tons, and grain by 349 tons. Shipped.—Wool increased by 7,164 tons, and produce decreased by 754 tons (as compared with February, 1934).

Aden Port Trust

The following are the returns of shipping using the Port of Aden for the month of September, 1935:—

	No.	Tonnage
Merchant Vessels over 200 tons ...	157	636,656
,, ,, under 200 tons ...	3	486
Government Vessels	48	93,357
Dhows	62	1,950
PERIM.		
Merchant Vessels over 200 tons ...	14	48,437

The number of merchant vessels over 200 tons that used the port in September, 1935, was 157 as compared with 126 in the corresponding month last year and the total tonnage was 637,000 as compared with 530,000.

Excluding coal, salt, fuel oil and Military and Naval stores and transhipment cargo, the total tonnage of imports in the month was 10,500 and of exports 6,800 as compared with 7,700 and 5,000 respectively for the corresponding month last year.

The total value of imports, excluding Government stores, was Rs. 56,30,000/- as compared with Rs. 31,95,000/- for September, 1934, and of exports Rs. 34,51,000/- as compared with Rs. 20,70,000/-.

The total value of both imports and exports together was Rs. 90,81,000/- as compared with Rs. 52,65,000/- for the corresponding month last year.

Imports during the month were above those for September, 1934, in the case of coffee, grain, pulse and flour, gums and resins, hardware, raw hides, raw skins, grey, white and printed or dyed piece goods, twist and yarn, manufactured tobacco and private treasure; and below in the case of seeds, sugar and unmanufactured tobacco.

Exports were above those for September, 1934, in the case of coffee, grain, pulse and flour, gums and resins, hardware, raw hides, seeds, raw skins, sugar, grey, white and printed or dyed piece goods, manufactured tobacco and private treasure; and below in the case of twist and yarn and unmanufactured tobacco.

TRADE OF THE PORT.

Article.	Unit	Imports		Exports	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal	Tons	1,504	45,123	0	0
Coffee	Cwts.	11,055	3,46,867	10,866	4,31,210
Grain, Pulse and Flour	,,	57,872	3,01,612	40,469	2,06,622
Gums and Resins	,,	3,297	60,165	2,571	57,576
Hardware	—	0	58,995	0	46,557
Hides, raw	No.	5,240	6,636	6,629	12,411
Oil, Fuel	Tons	72,851	17,12,968	0	0
,, Kerosene	Gls.	21,080	14,000	976	691
,, Petrol	,,	55,640	56,294	112	113
Salt	Tons	0	0	23,551	2,50,319
Seeds	Cwts.	3,434	25,401	1,392	11,632
Skins, raw	No.	326,597	1,35,033	363,304	2,70,899
Sugar	Cwts.	16,765	81,956	20,974	1,03,381
Textiles—					
Piece Goods, Grey	Yds.	3,362,984	4,33,301	2,550,270	3,31,571
,, ,, White	,,	598,266	93,173	280,650	46,538
,, ,, Printed or Dyed	,,	1,072,841	1,82,316	1,094,969	1,95,005
Twist and Yarn	Lbs.	122,650	60,668	90,633	44,319
Tobacco, Unmanufactured	,,	81,676	10,755	511,280	94,134
,, Manufactured	,,	78,652	51,599	80,912	21,450
Other Articles	No. of Pkges.	86,020	14,74,708	28,464	6,35,912
Treasure, Private	—	0	4,75,598	0	6,90,616
Total ...	—	—	56,30,168	—	34,50,956

Hull and the East Coast

Dock Extensions to be undertaken at Hull.

AS a result of the representations made by those interested in the Hull Fishing Industry with a view to obtaining extended dock facilities, the London and North-Eastern Railway Company, the owners of the Dock Estate, have, it is reported, decided upon an important scheme, which to carry out, it is estimated, will cost upwards of £750,000. At present the fishing fleet and its auxiliaries are accommodated at the St. Andrew's Dock and its extension, and for some time past it has been very evident that further accommodation is needed to keep pace with the rapid growth of the industry and to remove the causes of the congestion which occurs at busy periods. The suggestion was that the William Wright Dock adjoining at the eastern end and now devoted to the Mediterranean and other trades, should be given over to the steam trawlers, but this and other proposals were regarded as unacceptable, and it has, therefore, been decided to further extend the present dock extension westwards, which will increase the water area from 19½ to 24½ acres, and permit of the quays being lengthened by, roughly, a thousand feet. This will cut through the existing slipways which will be removed to the new portion where new and additional coaling appliances will be installed.

No announcement can yet be made concerning the placing of contracts and the date of the commencement of the work upon the new dock, but there will be no avoidable delay as the demand for the extra accommodation is urgent.

The Hull fishing fleet now consists of approximately 320 steam trawlers, and recently orders have been placed in Humber shipyards for several more of the largest and most up-to-date type to either replace obsolete vessels or augment the fleet.

Over four million hundredweight of fish is landed at Hull yearly by British-owned craft. In addition to this, there are large imports of herrings for the purposes of the curing houses during the off season. In order to meet the great growth of the industry in recent years the London and North-Eastern Railway have undertaken many improvements at the St. Andrew's Dock, the most important being the rebuilding of No. 2 Fish Quay and the covered-in market at a cost of £100,000 shortly after a disastrous fire six years ago. The reconstruction of No. 1 Quay followed, together with the widening of the North road, the building of new offices and club for the fish merchants, and a new postal telegraph office.

The latest scheme forms part of the five-year plan in connection with the reconstruction and improvement of Britain's railways. There is, however, scope for further dock extension at Hull. The timber trade is very anxious that additional discharging berths should be provided at the Victoria Dock, and this can only be done by increasing the water area in an easterly direction on land which is already the property of the Company. The imports of timber at Hull have increased to a million and more loads per year, and as the great bulk arrives during the summer and autumn months there have been times when dock congestion has been unavoidable, and serious delays to incoming steamers with timber cargoes have been caused.

This year imports, so far, have been on a somewhat smaller scale than last season and, happily, serious congestion has been avoided, thanks to the joint efforts of importers and the railway authorities to expedite discharge.

Owing to the filling-in of the old Queen's Dock, the water area of the docks at Hull has been reduced by ten acres, and as the vessels formerly using the dock have had to be accommodated elsewhere in the port, the claim for new extensions is unanswerable. It is, however, largely a question of financial expenditure which the owners at the moment may or may not feel justified in incurring.

The New Bridge over the Humber.

The preliminary work in connection with the revival of the project to build a new bridge across the River Humber between Hull and North Lincolnshire is well in hand, and it is hoped that before very long a definite scheme will have been prepared. The cost of obtaining a report from the Consulting Engineers has been fixed at £500, and at a meeting of the special Sub-committee of the Hull Corporation who have the matter in hand, it was stated that the Ministry of Transport had forwarded a formal statement of a grant from the Road Fund of £250 in respect of this expenditure. It was also stated that the Lindsey (Lincolnshire) County Council had agreed to contribute a sum not exceeding £100 towards the cost of the report, the amount of such a contribution within the limit of £100 being dependent upon the amount of the grant received from the Ministry of Transport. The Sub-Committee, without in any way committing the Corporation, have had interviews with interested bodies and persons and have arranged for further interviews. They felt, however, that the Council should be informed that a plan had been prepared by Mr. Ralph Freeman, of Sir Douglas Fox and Partners, Consulting Engineers, for a former scheme, for a bridge with a clear central span of 4,500 feet from low-water mark, and that it was anticipated that this would meet all objections which might arise from those who were interested in the navigation of the river.

The Sub-Committee, in their report, stated that it was felt that this information should be conveyed to the Council so that the members would be aware of the lines upon which the Sub-Committee are working, and be assured that the Sub-Committee would not commit the Hull Corporation in any way.

A complete report, it is promised, will be submitted after the negotiations have been completed and the financial proposals have been fully considered. When the project was first brought forward the Government were willing to contribute 75 per cent. of the cost of a million and three-quarters sterling, but this was subsequently withdrawn on the grounds of the urgent need for "national economy." In the altered circumstances it is hoped that an application for State aid will be favourably considered in view of the bridge being of public utility and forming a connecting link between two large areas now cut off from each other for all practical purposes. The construction of piers in the river to carry the bridge originally proposed met with very strong opposition from the Humber Conservancy Commissioners and others interested in the preservation of the navigable channel and from the Port of Goole, whose position it was contended might be seriously prejudiced. In a subsequent revised scheme the number of piers was reduced, and now, by the latest development, they will be dispensed with altogether, so far as the middle of the river is concerned. If Mr. Ralph Freeman's proposal of a single span of 4,500 feet be adopted and carried into effect, it will be the largest single span in Great Britain, though even greater lengths are in use in the United States.

Signs of Improvement on the Tyne.

At the November meeting of the Tyne Improvement Commission, Mr. H. P. Everett, chairman, said October showed a definite improvement in revenue, which was £3,500 better than in October, 1934. It was mainly due to better coal shipments from the Commissioners' staiths. The Lord Mayor (Councillor R. S. Dalgliesh) said that while the trade reports were far from pleasing, October showed a distinct improvement on September. October was the best month since March at the Commissioners' docks and staiths. This was most marked at Albert Edward Dock, where there was an increase of 17,000 tons in coal shipped. At the same meeting it was reported there were 38 laid-up vessels in the Tyne, totalling 83,000 net register tons. A year ago the number was 72 vessels of 140,000 tons, a very striking improvement.

Seaborne Goods Traffic of the Weser Ports during August.

Turnover of the Bremen Ports in sea-borne goods traffic during August amounted to 564,296 tons, an increase of 75,631 tons, or 15.3 per cent. compared with the previous month, and an increase over August, 1934, by 91,857 tons, or 19.4 per cent.

Compared with the previous month goods transport increased by 20.8 per cent. and compared with the same month in 1934 by 31.3 per cent. Total receipts were 212,933 tons. The chief reason for the increase lies in greater imports of foodstuffs and luxuries, while raw materials and half-manufactured goods decreased. Receipts of finished manufactures also decreased slightly compared with the previous month. Larger quantities of coal arrived from Great Britain, also of cotton and iron wares.

Arrivals of cotton and timber from North American ports and of mineral oils from North and Central American ports decreased considerably, while shipments from South America and other parts of the world have increased. Thus more cotton was received from South America, more cotton, oil seeds and timber from Africa, less wheat and jute from Asia, but considerably larger quantities of oil seeds and cotton, and finally Australia sent increased quantities of wool and flour.

Since the considerable fall in transports from Bremen in the second quarter of 1935 there has been an improvement since the beginning of July. The increase is chiefly due to an increase in transport of heavy goods. Total transport in August was 351,363 tons, compared with 290,748 tons in July. Chief increases were in manures to Great Britain and coke, chemical products, manures, timber and cellulose to Northern Europe and coals to Southern Europe.

North-East Coast Notes

Tyne Trade Fluctuations.

THERE is one striking fact revealed in the trade figures for the Tyne for the nine months ended September 30th, which are the latest to hand. That is, while there was a net decrease of 8.91 per cent. in general merchandise imported, there was an increase of 8.79 per cent. in the exports of the same character. There the similarity ends. The quantities are naturally very different, for the great proportion of outward shipments come within the category of coal and coke. The general merchandise imported into the Tyne in the first nine months of 1935 totalled 1,272,407 tons, compared with 1,396,861 tons in the like period of the previous year, a net decrease of 124,454 tons. The chief falling off in this section of trade was in respect of minerals and metals; iron ore was down by 28,645 tons, and other minerals by 34,501 tons, while timber was 34,959 tons less, the timber arrivals totalling 224,364 tons. There was a noteworthy increase in the imports of fuel oil which at 67,412 were 21,070 tons higher. With respect to the exports of general merchandise the total was 231,859 tons, a net increase of 18,731 tons. There was an improvement in a number of articles, the largest figure being 8,267 tons increase in oil fuel bunkers at 23,151 tons. The statistics for coal and coke shipments are carried a month later, that is to the end of October. The grand total for coal cargoes and bunkers and coke was 11,072,374 tons, a decrease of 573,598 tons on the previous year, or nearly 5 per cent. Practically half of this shortage was in respect of bunkers shipped, for the total of 1,118,263 tons was 228,306 tons below the corresponding months of 1934. At the same time, it may be noted that there was a big increase in oil fuel bunkers. In ten months this year 176 vessels took 26,975 tons, compared with 118 vessels and 15,900 tons last year, an increase of 52 ships and 11,075 tons.

Politics and Coal Trade.

In the minutes of the Docks and Trade Committee read at the October meeting of the Tyne Improvement Commission, it was reported that the Chairman, Councillor Dalgliesh had moved:—"That this meeting of the Docks and Trade Committee of the Tyne Improvement Commission views with great concern the falling off in the shipments of coal in the River Tyne, and the effect on allied trades. The Commissioners call on the Government to reconsider Part One of the Coal Mines Act with a view to its abolition in order that there may be more freedom in the sale of coal and thus assist this and allied trades to regain their former position." The Lord Mayor reported that there had been an interesting discussion on the resolution, and it would be continued at the November meeting of the Committee. At the latter meeting the matter was further adjourned in view of the political situation. It will be remembered that Part One of the Coal Mines Act 1930, limits production, each district being granted an allocation.

Regarding the coal staiths in course of construction at Jarrow, primarily for the shipment of coal from the pits of John Bowes and Partners, Ltd., it is reported that while completion under the contract was not due until September 1936, it was hoped that part of the plant would be ready for coal shipment next May.

More Rumours about Jarrow Slake.

Although at present details are lacking, there seems some probability that a new move for the construction of deep-water quays at Jarrow Slake will be considered. This effort is being made by the Tyneside Industrial Development Board. According to Mr. Coote, secretary, the Board expected to obtain a grant from the Government to carry out the work under the Act of 1909, but at present negotiations are in an early stage. In March this year the Special Area Commissioner offered a grant of £250,000 to the Tyne Improvement Commission towards a scheme for erecting quays at Jarrow Slake subject to an arrangement being entered into with the London and North-Eastern Railway regarding Tyne Docks. Mr. Coote stated, however, that these negotiations had fallen through, and as far as he knew the Tyne Commissioners had dropped their scheme. The project proposed by the Development Board was much larger than that suggested by the Tyne Commission.

Work has recently been started on the foundations of a new storage tank of 1,700,000 gallons capacity to be erected at the oil storage depot of the Shell-Mex and B.P. Company, Ltd., on the Mercantile Dry Dock Company's estate at Jarrow. The contractors for the foundations are Messrs. Grant and Livingston, of Ilford, Essex, and the Whessoe Foundry and Engineering Co., Ltd., Darlington, will construct the tank.

Another Blyth Record.

Blyth never seems to tire of making records, and a fresh one was set up at the end of October when 148,470 tons were shipped in a week—a fine achievement.

At the meeting in October of Blyth Harbour Commission particulars of the coal shipments for the nine months ended September 30th, were submitted as follows:—1935—4,633,155 tons; 1934—4,728,573 tons; 1929—4,144,364 tons. The totals show a decrease of 2 per cent. on 1934, and an increase of 12 per cent. on 1929. The Chairman (Mr. Ridley Warham) reported that if nothing unforeseen occurred there was every probability that the shipments for the year would again exceed six million tons, although last year's record was not likely to be exceeded.

On Wear and Tees.

The coal and coke shipments from Sunderland during September totalled 315,564 tons, a decrease on the same month of 1934 of 11,227 tons. For the nine months of this year the shipments totalled 2,834,523, being 141,754 tons less than in the same period of 1934. Other exports totalled 30,252 tons, a decrease of 5,465 tons for the nine months. The imports for the nine months were 262,230 tons, or 7,558 tons less than in the like period of 1934.

The Tees Conservancy Commission's report for the year ended October 31st, shows that imports of iron and steel during the twelve months amounted to 39,345 tons, compared with 45,391 tons in the corresponding period a year ago, and 54,561 tons in the like period before the War. Imports of pig iron are down by nearly 6,000 tons, compared with the preceding twelve months. Finished steel shows virtually no change, but imports of semi-finished steel in the form of crude sheet bars, billets, blooms, and slabs increased by 10,000 tons to 36,567 tons.

Canadian Notes

Canadian Export Cattle Shipments, 1934.

According to the Fifteenth Annual Market Review of the Dominion Department of Agriculture for 1934, exports to the United Kingdom last year of Canadian cattle totalled 53,852 head, as compared with 50,317 head in 1933. Exports during the first three months of 1935 were not much more than half the volume of the corresponding period of 1934, arrangements having been suggested under which exports this year were to be stabilised at the figure for the previous twelvemonth.

At the same time Canada's exports of cattle to the United States totalled only 6,058 in 1934, as against 5,686 during the previous year.

Grain Handling Facilities at Port Arthur and Fort William, Ontario.

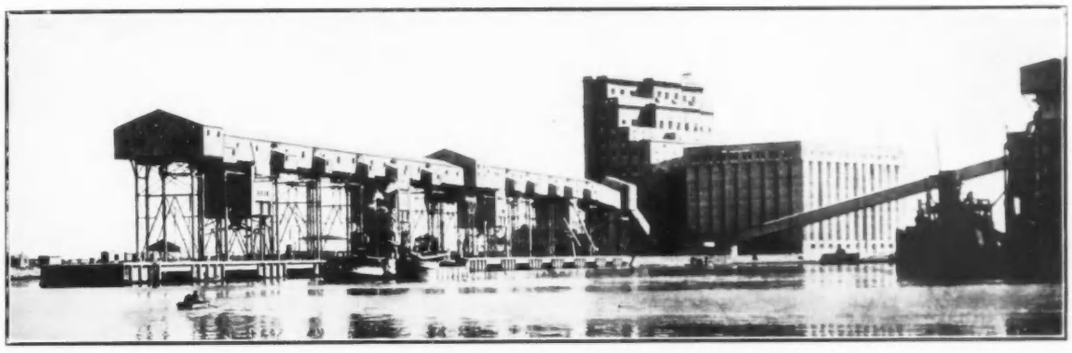
According to figures recently issued by the Board of Railway Commissioners, the total elevator storage capacity at the Twin Ports of Fort Arthur—Fort William (Ontario) at the head of Lake Superior, is now 92,680,000 bushels. Of this total, Fort William has 15 elevators with a total storage accommodation of 40,290,000 bushels, whilst Port Arthur with 15 elevators has a total capacity of 52,390,000 bushels.

Since 1922, the Twin Ports have had the largest elevator capacity in the world, including the most modern facilities for the rapid handling, cleaning and drying of grain, and handle more wheat annually than is dealt with in any other port in the world. The greatest quantity of grain which has ever been held at one time in the elevators in the Twin Ports was the 87,370,451 bushels (including 75,065,238 bushels of wheat) in store on May 4th, 1934. The record quantity of wheat shipments from the ports was that recorded in the crop year 1928-1929, amounting to 293,435,687 bushels. The greatest quantity of grain of all kinds received from western points was the 424,431,963 bushels handled during the calendar year 1928. The greatest number of cars unloaded in one day was that recorded on October 2nd, 1928, namely, 2,748 cars, containing 3,794,208 bushels, whilst the greatest quantity of grain shipped in any one single day was that for November 29th, 1928, totalling 6,395,814 bushels. The heaviest cargo of wheat loaded in one vessel was the 571,796 bushels loaded on the s.s. "Lemoyne" in July, 1929, whilst the largest full cargo of oats was loaded on December 7th, 1915, on the s.s. "W. Grant Morden," namely, 760,058 bushels.

Remarkable Grain-loading Records at Bahia Blanca

Some remarkable grain handling and loading records have been achieved at the 80,000-ton granary at the Port of Ingeniero White, Bahia Blanca, in the Argentine. This granary, which was built and equipped by Henry Simon, Ltd., the well-known engineers, of Cheadle Heath, Stockport, for the Buenos Aires Great Southern Railway Company, has now been in operation for three years, and has handled approximately a million tons of grain per annum.

Among the notable achievements in grain handling at this granary, the following are worthy of special mention. In February this year six ocean-going ships were loaded in six consecutive days with a total of 48,864 tons of grain, comprising 24,207 tons of wheat, 17,675 tons of barley, 4,806 tons of rye and 2,177 tons of oats. The actual bulk loading time was 42 hours, giving an average rate of 1,163 tons per hour. 6,070 tons of wheat were loaded to the ss. "Rigel" last August in six working hours. The vessel arrived alongside the granary on the morning of the 17th and sailed again on the morning of the 18th.



The Granary at Bahia Blanca.

In six consecutive days in March, 1,060 railway trucks were discharged and 55,615 tons of wheat, oats, barley and rye were deposited in the granary. In one day a total of 7,146 tons of grain was discharged from 208 trucks. A photograph of the granary is reproduced here.

Port of Southampton Topics

Docks Statistics for October.

Southampton Docks statistics for October compare very favourably with the returns for the corresponding period of 1934. Every phase of traffic—ships, tonnage, cargo and passengers—shows an increase.

The number of vessels inward numbered 245, as against 229, and outward 241, as compared with 218.

Gross tonnage amounted to 1,492,930 tons inwards, which was 17,309 tons less than in October, 1934, when the figure was 1,510,239 tons. But this decrease was more than made good by the outward increase of 121,007 tons, which resulted from the total rising from 1,400,277 tons to 1,521,284 tons.

The net tonnage showed an increase both inward and outward. The former total was 821,710 tons, as compared with 813,200 tons in October last year. Outward, the return was 822,687 tons, contrasted with 758,747 tons.

The volume of cargo dealt with advanced by some 21,000 tons, a very gratifying feature. Imports mounted from 63,214 tons to 70,851 tons, and exports from 31,341 tons to 44,698 tons. Inward cargo was therefore 7,647 tons in excess of the total for October, 1934, and outward freight was 13,357 tons more.

The passenger returns were also very satisfactory, for although there was a slight drop in the number of people who arrived, the departure total more than compensated for that loss. Inward passengers totalled 11,188, as against 11,672, and outward 15,338, as compared with 14,333. The decrease inward was therefore 484, and the increase outward 1,005.

North Atlantic Passenger Traffic Increasing.

It has been evident from the Southampton Dock returns for some time that passenger traffic on the North Atlantic is on the up-grade, and the announcement that approximately 36,500 more passengers were carried across the Atlantic during the first nine months of this year came as little surprise here.

It is naturally a matter for gratification that this improvement was recorded after the succession of lean years, but the figures show that the North Atlantic passenger business has a long way to go before there is any return to the boom period which followed the war.

The return shows that the increases were shared very evenly among the various shipping companies engaged in trade between Europe and North America. The increase has also been common to all classes—first, cabin, tourist and third class.

May 27th, 1936, will be a red-letter day in the history of Southampton Docks, for on that day the new Cunard-White Star liner "Queen Mary" will set out from Southampton on her maiden voyage for New York.

The liner is expected to leave Clydebank on March 24th, and arrive at Southampton, probably after undergoing some trials, about the beginning of April. At Southampton she will be dry-docked in the King George V. dry dock, which was built specially to receive this new giant of the ocean.

* * * *

An example of expeditious handling and despatch of fruit traffic at Southampton Docks, was afforded recently during the unloading of a shipment of 93,081 bunches of bananas brought from the West Indies and Central America by the s.s. "Erin." The discharge of this cargo was begun at 8 a.m., and at 9.50 a.m. the first "special" freight train, comprising 32 specially refrigerated wagons left the docks.

* * * *

With the completion of the last of the four pairs of sheds on the Docks Extension Estate, Nos. 107/8, the new 7,000 ft. quay is now fully equipped with eight spacious and well-lit sheds, having all modern facilities and amenities for dealing with passengers and cargo. These sheds each have a width of 150 ft. and vary in length from 600 ft. to 900 ft.

On the same estate, a large train warming and cleaning shed, capable of accommodating six boat expresses, has been under construction during the last few months, and it is expected that the building will be ready for use within the next few weeks.

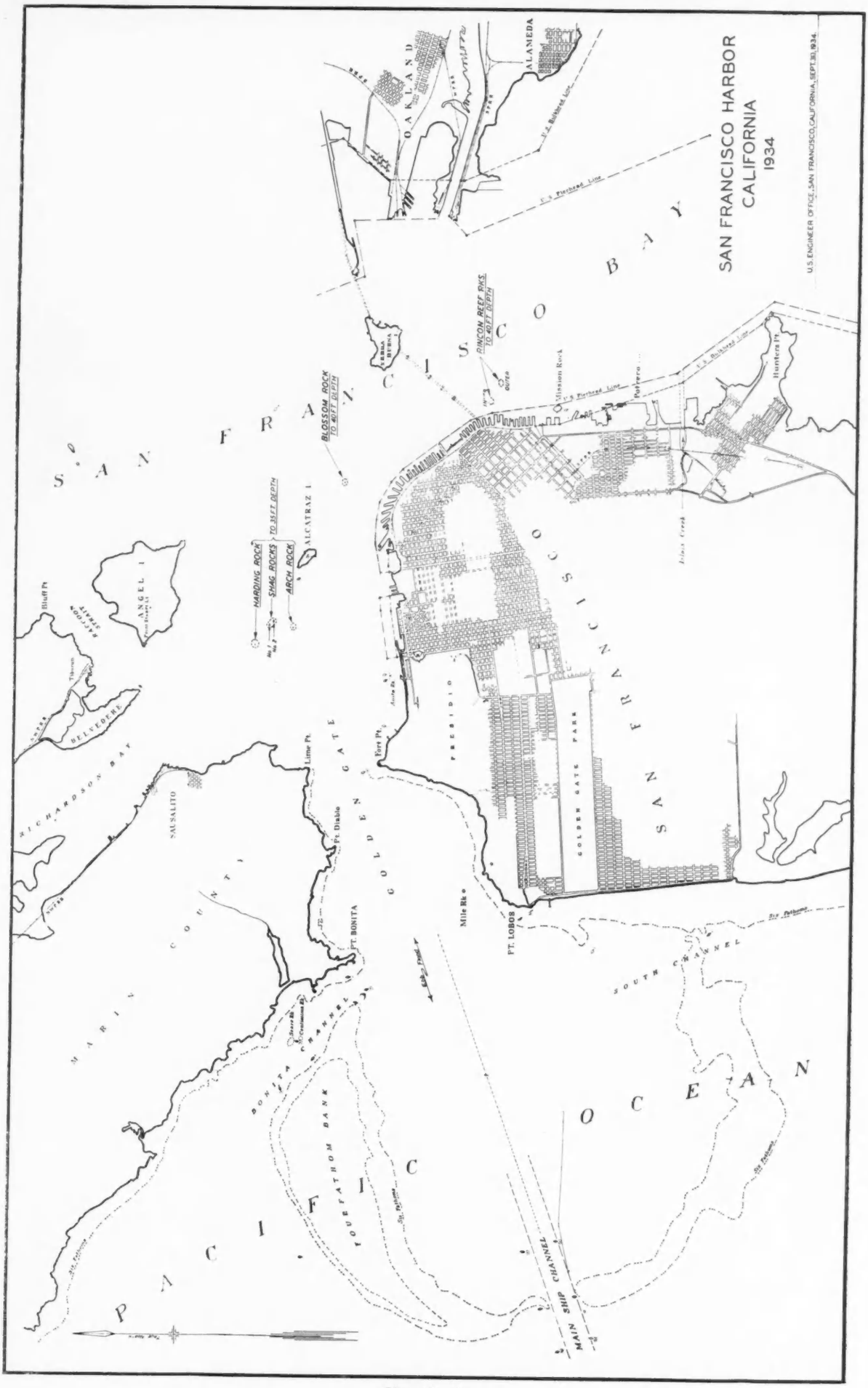
* * * *

In connection with the developments that have taken place in the Australian and New Zealand trades at Southampton Docks of late, it is interesting to record the recent arrival of a considerable shipment of Australian eggs ex the Aberdeen and Commonwealth liner "Jervis Bay." This consignment was the first of its kind ever to reach the port.

* * * *

A shipment of 71 unpacked American motor cars—another new traffic for Southampton Docks—was landed ex the Red Star Line's "Westernland" on November 5th, during her call in connection with the fortnightly service between New York and Antwerp. The vessel also discharged a general cargo, including grape fruit, oranges, apples, etc.

Subaqueous Rock Removal in San Francisco Harbour



Map No. 2.

Subaqueous Rock Removal in San Francisco Harbour

By Colonel HENRY A. FINCH, Corps of Engineers, U.S. Army

Official Photograph] [Air Corps, U.S. Army

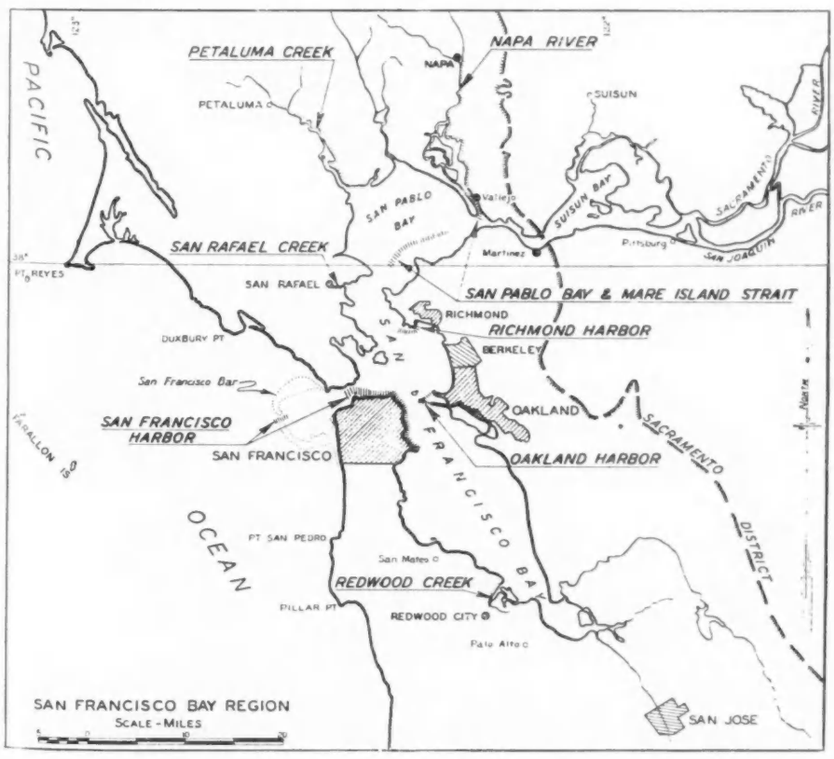
Photo No. 1. San Francisco Peninsula and Harbour from 15,000 ft. Golden Gate at right. Alcatraz Island in the foreground.

SAN FRANCISCO BAY, that sea-drowned valley on the California Coast, is one of the world's noted stopping places for ships. With 400 square miles of water area sheltered behind the headlands of its Golden Gate (Photo No. 4), and with a million and a half people living on its shores, it is logical that this bay should serve many harbours: Redwood City, Alameda, Oakland, Richmond, the oil ports on Carquinez Strait, Stockton 90 miles inland, Mare Island Strait serving the United States Navy Yard and the City of Vallejo, the secondary or "feeder" channels connecting with Suisun, Napa, San Rafael and Petaluma, and, of course, the largest and finest harbour of all, that of San Francisco (Map No. 1).

This harbour started by being well endowed by nature. Deep water existed fairly close to high land even before those insatiable beavers for work, white men, appeared on the scene in 1776, and gradually, as the original struggling settlement of Yerba Buena developed into the fair city of San Francisco, the land was filled out to meet deeper water and a symmetrical, spacious waterfront was created (Map No. 2 and Photo No. 1).

To insure the growth of this unique harbour that was to serve the entire northern portion of California, the State took over its control in 1860, ten years after admission to the Union, and placed it under the supervision of a State Board of Harbour Commissioners. The value of the State-owned docks and piers and the shore facilities serving them now totals upwards of 85 million dollars (Photos No. 2 and No. 3).

The State maintains dredgers for keeping the berthing slips cleared to the required 30 ft. and 35 ft. depths as far out as the pierhead line, the boundary between State and Federal responsibility for maintenance. Bayward of the pierhead line in the area under Federal supervision, the amount of dredging required has been nominal. In fact, there are few harbours of this magnitude where so little work has been needed to accommodate ships of the deepest draft. In the past 65 years the United States Government has been called upon to spend but 2½ million dollars on San Francisco Harbour and of this, one million has been expended since 1926 in dredging a channel 50 ft. deep by 2,000 ft. wide across the bar lying five miles outside the Gate, over which a natural depth of 35 ft. existed. Most of the remaining 1½ million has been spent on the progressive removal of stone pinnacles from the bay area bounding the City's waterfront on the north and east.



Map No. 1.

Subaqueous Rock Removal in San Francisco Harbour

Official Photograph] ***Photo No. 2. Looking North and West over Ferry Building.*** [Air Corps, U.S. Army

Official Photograph] ***Photo No. 3. Looking East and South over Ferry Building.*** [Air Corps, U.S. Army

Subaqueous Rock Removal in San Francisco Harbour—continued

Official Photograph] [Air Corps, U.S. Army

Photo No. 4. Golden Gate from 15,000 ft.

The first Federal project for the improvement of this harbour dates back to 1870 and involved cutting off a sandstone obstruction known as Blossom Rock. This pinnacle, standing squarely in the fairway, was only about 8 ft. in diameter at its crest, which at low tide was only 5 ft. under water. It was proposed to remove this rock to a depth of 24 ft. below low water at which depth it measured about 100 ft. by 200 ft.

The Army engineers at first attempted to get results by surface blasting. Kegs of black powder, assembled in charges of 100 to 200 lbs., were placed on the rock, covered with sail cloth, weighted down, and exploded. The effort failed in spite of repeated attempts. The suggestion was then advanced that drilling apparatus might be mounted on a framework of metal and timber, which could be placed on the rock for working purposes and removed to permit the holes to be exploded. This scheme did not get beyond the discussion stage.

Another employee of the Federal engineer office suggested the use of a wooden cofferdam to be mounted on the rock, weighted down and used as a shelter behind which a shaft and lateral tunnels could be drilled.

Eventually, in 1870, a contractor, one Von Schmidt, devised a plan that appeared to promise success at reasonable cost—his idea being to provide a special barge with an open well in the centre through which to lower a steel cylinder as a cofferdam (Photo 5). A contract was awarded to Von Schmidt for $75,000, for which he was to cut Blossom Rock down to 24 ft. below low water. About 9,000 cu. yds. of stone had to be handled.

San Francisco Bay is no mill-pond. Surging waves and strong ebb tidal flows finally convinced the contractor that he could not anchor his barge securely enough to hold the cofferdam. Recourse was then had to sinking a wooden crib with a 6-ft. steel tube secured in the centre. Leakage, however, was so great that Von Schmidt was compelled to telescope two smaller tubes inside of the large one and to plug the intervening spaces with concrete.

Behind this cofferdam the contractor finally succeeded in sinking a shaft to the required depth. From this a 140-ft. by 60-ft. gallery, as much as 12 ft. in height, was extended the length of the rock, and this was loaded with 21 tons of powder. The chamber was then flooded and the charge detonated electrically from a nearby ship. Water and rock fragments were thrown 200 ft. in the air.

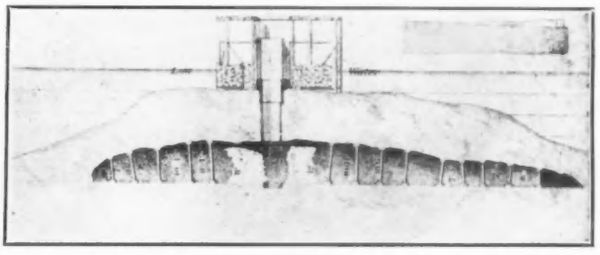


Photo No. 5. Section of Cofferdam used by Contractor on Blossom Rock in 1870.

Blossom Rock was well demolished, but unfortunately the fragments were not scattered into deep water, and the luckless contractor was forced to spend several months scraping away with a huge steel rake before the project depth was secured and he could claim his hard-earned seventy-five thousand dollars. The depth on this pinnacle was later increased to 30 ft. by surface blasting.

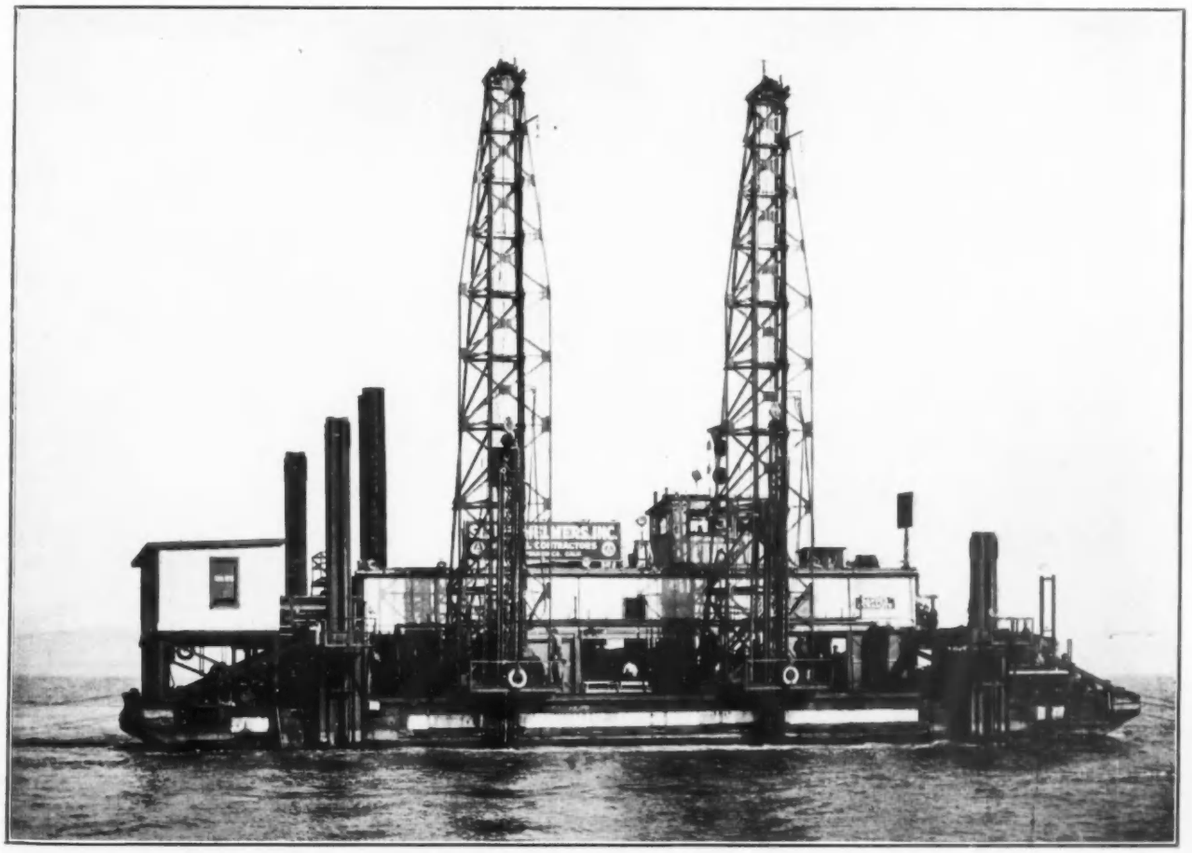


Photo No. 6. Side View of Drill Boat, showing Two 67 ft. Drill Derricks and Heavy Spuds.

Subaqueous Rock Removal in San Francisco Harbour—continued

In 1899 it became necessary to remove a group of pinnacles from the area west of Alcatraz (Pelican) Island. These included Arch Rock, projecting a few feet above low water, and the two submerged Shag Rocks. The removal of about 31,000 cu. yds. of sandstone was required to get the project depth of 30 ft., only one-sixth of this being in the two submerged pinnacles. Remembering the difficulty experienced on Blossom Rock, the contractor in attacking Arch Rock decided against tunnelling, but relied instead on churn drilling from a timber platform 11,000 sq. yds. in area, the drills being supplied with steam from a barge. In this fashion, 8-in. and 10-in. holes were drilled and eventually 20 tons of dynamite were placed. At this stage, however, ground swells demolished portions of the platform and destroyed some of the wiring, so that when the blast was finally set off, the contractor found himself left with an irregularly shattered rock containing many high spots. A second blast destroyed most of the remaining platform, and as a last resort, "bulldozing" or surface blasting was resorted to for the final stage. Two years were required to complete the work on Arch Rock alone.

For the demolition of the two smaller submerged pinnacles, Shag Rocks, the contractor had no better luck. His first structure, a fixed platform, was destroyed by ground swells; he next pinned his faith to a floating platform to be anchored to a fixed mast while in use. This went the way of its predecessors, and once more resort was had to surface blasting with dynamite.

This method, expensive as it was, had proven to be the only reliable one except for the unsatisfactory first experiments with black powder on Blossom Rock. With the advent of high-test dynamite there came much discussion as to its power under water, and one enthusiast is reported to have backed his judgment to the extent of detonating 26 tons of this explosive in a single charge against the face of one of the Shag Rocks. Triangulation showed that a geyser of water was hurled 1,400 ft. in the air—but with practically regligible effect on the rock!

By 1930 the 30-ft. depths on the various pinnacles in San Francisco Bay had come to be regarded as insufficient and a project was adopted for a 40-ft. depth over Blossom Rock and the two Rincons in the eastern part of the harbour, and for 35 ft. over Arch Rock, the two Shags and a small pinnacle, Harding Rock, carrying a natural depth of 29 ft.

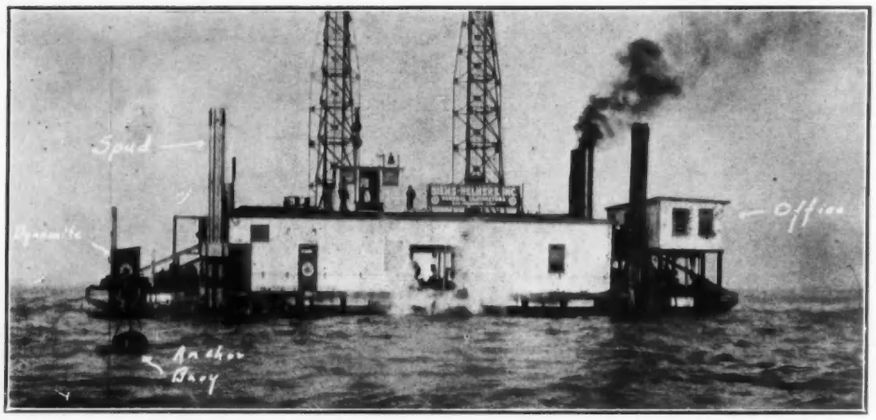


Photo No. 7. Back of Drill Barge, showing Anchor Buoy, Spuds and Method of Storing Explosives.

With 35 ft. of water over the Rincon Rocks and 30 ft. over the others (except Harding Rock) the project involved slicing 5 ft. to 10 ft. from the top of each pinnacle. The average thickness of rock to be removed varied, in the different locations, from 0.9 ft. to 6 ft. The areas of the rocks varied from 2 acres for Arch Rock, 1.1 for Blossom Rock down to 0.3 acre for Shag No. 1 and 0.03 acre for Harding Rock. The material was a fairly hard sandstone throughout. The quantity above the planes of removal totalled 26,049 cu. yds., but to protect the contractor to some extent against loss due to unavoidable over-depth dredging, the contract provided for payment for all rock actually removed to a depth not greater than 2 ft. below the plane of the required depth in each case. The quantity included in these 2-ft. "layers" amounted to 21,084 cu. yds.

With a limited experience in San Francisco Bay and a few other harbours as a background for figuring on this class of work, it is not surprising that the Army engineers in preparing their estimate of the cost against which to check the bids received, should have decided to rely on surface blasting. Modern sub-aqueous drilling machinery, however, had been developed in the preceding few years and this had its effect on the bidding. Against a Government estimate of $18.00, the successful bidder, Siems-Helmers, Inc., submitted a figure of $11.23 per cu. yd. and received the award.

The contracting firm did not under-estimate the natural hazards involved in this work due to the widely separated locations of the 7 pinnacles, and the variety of tidal currents to be confronted, and they assembled an adequate plant for the purpose. This consisted of the following items:—

A drill boat (Photos 6 and 7), a dredger, a derrick barge, and two gasoline-operated tow boats.

(To be continued)

Weser Inland River Shipping in September, 1935

Water conditions on the Weser during September remained unfavourable. As in the foregoing months shipping was maintained on the Upper Weser by supply of additional water from the Eder reservoir. On the Middle Weser barges passing from the canal to the Weser had to be lightened.

During the whole of the last quarter water conditions were far worse than in the first two quarters of the year. Average draft depth on the Upper Weser during this period was 1.10 metre, and that solely due to the supply from the Eder reservoir. On the Middle Weser draft depth amounted to 1.30 metre, which only permitted barges with two metres draft to be loaded to half their capacity.

Traffic through the Bremen Weser Lock in September with a total of 175,100 tons, was lower than August, which showed a total of 176,400 tons. Downstream 141,100 tons (142,000 tons in the previous month) were carried. Potash and salt transports showed a considerable increase; piece-goods also showed a slight rise. The other goods showed decreases. Upstream 34,000 tons (34,300 tons in the previous month) were carried. Shipments of grain and foreign coal were larger. Mineral oil was also carried during the month under review. Compared with September, 1934, total quantity carried was 73,300 tons, or 72 per cent. greater; of this, 70,300 tons were carried downstream and 3,000 tons upstream.

During the period from January to September, 1935, a total of 1,504,500 tons passed through the Bremen Weser Lock. That is 388,700 tons, or 35 per cent. more than during the same period of the previous year. The reasons for this increase besides the more favourable water conditions during the first half of the year, permitting greater transport of potash, are the considerably more extensive transports of building materials for construction of waterways and other constructions connected with the creation of work. Besides this, the re-opening of the Norddeutsche Hutte, Bremen, brought an increase in transport of chalk-stones in its train. However, all these increases were only in downstream traffic. The quantities carried were 1,143,400 tons, or 347,800 tons, equal to 44 per cent. more than in the previous year.

Upstream a total of 361,100 tons, or 40,900 tons, equal to 15 per cent. more was carried, due to increases in grain, mineral oil, rice, iron scrap, timber and flour. On the other hand, piece-goods, phosphate, foreign coal and iron pyrites decreased.

The Port of Colombo

Dredging.

The overhaul of the dredger " Sir William Matthews " was completed on September 2nd, 1935, and during the month of September she dredged a total quantity of 18,850 cubic yards of material, consisting chiefly of mud and yellow clay.

Vessels passing through the Lake to Harbour Canal.

The number of lighters, motor launches, steam launches, jolly boats, barges and punts, sailing boats, water boats and rafts which passed through the Lake to Harbour Canal in September, 1935, was 505 as compared with 677 in September, 1934. The total number of vessels which passed through the Lake to Harbour Canal in the first nine months of 1935 was 5,528 as compared with 7,761 for the corresponding period of 1934.

Goods Traffic through the Lake to Harbour Canal.

The goods traffic passing through the Lake to Harbour Canal during September, 1935, amounted to 689 tons of imports and 4,167 tons of exports, as compared with 1,154 tons of imports and 4,410 tons of exports in September, 1934. For the first nine months of 1935, 6,951 tons of imports and 37,411 tons of exports passed through the Lake to Harbour Canal, as compared with 17,853 tons of imports and 53,953 tons of exports for the corresponding period of 1934.

Liquid Fuel Imports.

The quantity of liquid fuel imported at Colombo during September 1935, amounted to 33,804 tons, as compared with 21,030 tons in September, 1934. During the first nine months of 1935, 236,556 tons of liquid fuel were imported, as compared with 213,934 tons for the corresponding period of 1934.

Liquid Fuel Bunkers supplied to Steamers.

Liquid fuel bunkers supplied to steamers in September, 1935, was 41 ships bunkered with 26,660 tons of liquid fuel, as compared with 43 ships with 22,383 tons in September, 1934. For the first nine months of 1935 the total number of ships bunkered was 374 with 201,301 tons of liquid fuel, as against 373 ships with 193,663 tons for the corresponding period of 1934.

Coal Imports.

The quantity of coal imported during the month of September, 1935, was 53,606 tons, as compared with 51,866 tons in September, 1934. Altogether 333,072 tons of coal were imported for the first nine months of 1935, as compared with 312,971 tons in the same period of 1934.

Coal Bunkers supplied to Steamers.

The number of steamers bunkered during September, 1935, was 79 with a total of 21,713 tons, as compared with 67 steamers with 18,237 tons of coal in September, 1934. For the first nine months of 1935, 635 steamers were bunkered with 180,849 tons of coal as compared with 597 steamers with 170,198 tons for the corresponding period of 1934.

Number and Tonnage of Vessels Entered and Cleared.

The number and tonnage of vessels other than country craft engaged in trade which entered and cleared at the Port of Colombo during the period specified was as follows:—

	Vessels Engaged in Foreign Trade		Vessels Engaged in Coasting Trade	
	No.	Tons	No.	Tons
(a) Entered				
During September, 1935	214	1,002,405	11	31,201
During September, 1934	213	970,473	4	13,431
During September, 1933	187	859,874	6	18,304
During the 9 months ended September, 1935	1,986	9,105,868	51	140,759
Do. 1934	1,965	8,975,436	34	102,862
Do. 1933	1,851	8,416,388	84	93,872
(b) Cleared				
During September, 1935	227	1,029,584	2	4,530
During September, 1934	216	986,291	3	7,435
During September, 1933	189	868,376	2	4,985
During the 9 months ended September, 1935	2,023	9,188,901	18	57,733
Do. 1934	1,979	9,017,965	26	88,180
Do. 1933	1,866	8,449,572	18	58,107

Tonnage of Imports and Exports.

The tonnage of imports and exports at this port during the periods specified was as follows:—

	DURING SEPTEMBER		
	1933 Tons	1934 Tons	1935 Tons
Imports (excluding Coal and Oil)	57,699	78,766	86,539
Exports (do.)	59,091	60,635	47,928
Total	116,790	139,401	134,467

Oil Facilities Receipts.

The oil facilities receipts for September, 1935, were Rs. 109,083, as compared with Rs. 76,973 during September, 1934. The total receipts for the first nine months of 1935 were Rs. 826,064 as compared with Rs. 707,903 for the corresponding period of 1934.

Book Review

TRANSPORTATION BY WATER, by Emory R. Johnson, Grover G. Huebner, and Arrold K. Henry. D. Appleton-Century Co., New York and London. 21s. net.

The authors have, in compiling this book, rendered a very great service to all people whose business is connected with transportation by water as they have so efficiently covered that very vast field.

The book embodies both ocean and inland transportation, and first of all deals with the various types of vessels used on ocean transportation, the different engines used for the propulsion of vessels and some of the most striking structural features of the ocean carrier. The various ocean routes and canals are then discussed, also ocean terminal facilities and charges. Two chapters are also devoted to transportation facilities on the Great Lakes and on rivers and canals.

Part 2 of this book covers water transportation organisation, agencies and services, and discusses very fully the business side of water transportation, both on ocean and inland routes; Part 3 discusses the various shipping documents which are required in water transportation; Part 4 is devoted to the relation of carriers with one another and the public; Part 5 describes freight classification and charges; and Part 6, Government aid and regulations: shipping policy.

" Transportation by Water " is a book of 574 pages, with a very useful 11-page index, and the illustrations, maps and forms included are most useful. This book should prove of interest to anyone connected with the business of water transportation, as it is an invaluable book of reference.

The Port of Rotterdam.

The Chamber of Commerce and Industry of Rotterdam has recently issued the statistics concerning the movement of seagoing ships in the New Waterway, and which are as follows: During October, 1935, 936 ships with a net registered tonnage of 1,501,151 entered the Port of Rotterdam, as compared with 1,004 ships of 1,638,372 n.r.t. during October, 1934. The number of ships entering for the small ports in the environs were 195 of 368,939 n.r.t., as compared with 198 ships of 398,970 n.r.t. in October, 1934.

For the ten months ending October, 1935, 9,165 ships of 14,740,838 n.r.t. entered the port of Rotterdam, as compared with 9,495 ships of 15,620,467 n.r.t. for the corresponding period of 1934. The number of ships entering the Port of Rotterdam for the small ports in the environs during the first ten months of 1935 amounted to 1,970 ships of 3,927,090 n.r.t., as compared with 2,124 ships of 3,804,227 n.r.t. for the corresponding period of 1934.

After deducting the number of ships counted more than once in the different ports, the number of entrances during the month of October, 1935, amounted to 1,079 ships of 1,751,451 n.r.t., as compared with 1,160 ships of 1,937,460 n.r.t. in October, 1934. For the first ten months of 1935 the total entrances were 10,506 ships of 17,149,635 n.r.t., as compared with 11,067 ships of 17,607,063 n.r.t. for the corresponding period of 1934. These figures are for the whole region of the Port of Rotterdam with its environs, comprising the delta formed by the mouths of the Rivers Rhine and Meuse.

Renold Chain Drives.

The Renold & Coventry Chain Co., Ltd., have recently issued two very interesting publications describing the various uses to which their chain drives can be adapted.

One of the publications is an 8-page leaflet, and describes and illustrates very fully the utilisation of Renold chain drives in the shipbuilding industry. The illustrations show the Renold chain in use on various types of engines, pumps, elevators and conveyors.

The second publication is an illustrated brochure of 24 pages and describes and illustrates the many advantages of chain drives.

Stock Chain Drives—1 to 100 h.p.—can be delivered in 24 hours from stock.

Both these publications are excellently produced and can be obtained by any of our readers who are interested on application to the Renold & Coventry Chain Co., Ltd., Renold Works, Didsbury, Manchester.

News from all Quarters

South Africa

THE effects of the diversion of the shipping traffic from the Suez Canal are already being felt in Capetown. On the list of arrivals due at the Capetown Docks over the second week-end of November, there were 26 ships, which is in excess of arrivals over any one week during the year. Of this number, 17 have between them more than 40,000 tons of cargo to discharge. This is exceptionally large, in view of the fact that the average weekly tonnage landed during the last few months has been in the region of 1,800 tons. The number includes four vessels at least diverted from the Suez Canal, which would in the ordinary way have missed the Cape. They are the "Muncaster Castle," "Port Alba," "Cornwall" and "Clan Macdougall".

For the two following weeks even greater activity for the Capetown Docks was anticipated. A huge whaling fleet of about 150 vessels was coming south.

An immediate effect of the hostilities in Abyssinia has been the diversion of shipping from the Far East and Australia from the Suez route to the Cape route, according to a statement by Mr. R. H. Parry, President of the South African Chambers of Commerce, speaking at the monthly meeting of the Capetown Chamber of Commerce. An increased demand for oil fuel has already been experienced, and it is probable that increased quantities of bunker coal will also be called for until the position in regard to the Suez route becomes more defined.

The responsible authorities are taking the necessary steps to fulfil the extra demands of shipping, and it is anticipated that all requirements can be adequately met at the South African harbours. Should, however, any very considerable diversion of shipping to Capetown take place, the necessity of additional accommodation at the harbour will be abundantly demonstrated, and it would serve to emphasise what has often been said in the Chamber as to the importance of the strategic position of Capetown.

Brazil

The increase in imports recorded in the harbour of Bahia during the first quarter of the year, continued throughout the second, according to a report by the Bahia Statistical Office. The principal goods unloaded included wheat, petroleum, coal, benzine, cement, and iron and steel goods, the imports of all of them rising by both weight and value. Export cargoes, which included cocoa, coffee and tobacco, remained less satisfactory. Most of them were destined for France, Germany, and the U.S.A., whilst the goods imported originated in Great Britain, Germany and the U.S.A.

For the first time since 1927, the Statistical Department of the Ministry of Finance has published a survey of the shipping developments in the Brazilian harbours. This includes the following table giving the average yearly traffic of Brazilian and foreign vessels since 1902:—

Years	Brazilian Vessels	Foreign Vessels
1902/6	12,779	4,005
1907/11	15,676	5,218
1912/16	19,081	5,222
1917/21	19,009	3 831
1922/26	22,026	5,692
1927/31	24,484	7,841
1932	24,158	5,915
1933	24,413	6,585

The rapid development in the figures for home vessels from year to year has continued at an equally steady pace since 1933, whilst those for foreign vessels have remained subject to considerable fluctuations.

Roumania

The importance of the well-known Roumanian grain-exporting harbour Braila is steadily declining. The growing amount of emigration from the town and harbour is resulting in a dearth of suitable labour, and, in spite of the feverish construction activity which is raging throughout the rest of the country, little or no improvements are being made to the harbour of Braila. Recent goods export figures clearly reveal the severity of the decline in the development of the port. They amounted in 1930/31 to 1,121,172 tons, in 1933/34 to 521,494 tons, and in 1934/35 to only 249,070 tons. The figures for transit traffic tell the tale still more clearly. The exports of transit goods during the 1933/34 season amounted to 822,310 tons, whilst in 1934/35 they had shrunk to only 309,130 tons. A special Government commission has been appointed to carry out an investigation into the causes of the decline. It has been found that it is due partly to the general economic situation of the country, and to the transformation from grain to oil as the most important substance handled. The principal causes, however, are of a technical rather than economic nature. Braila lies at a distance of 150 kilometres from the open sea, with which it is connected by the Sulina Canal. This has a tendency to becoming blocked with sand, which the European Danube Commission is attempting to prevent. The Commission itself, however, has insufficient funds at its disposal for the work, but in order to encourage the use of the harbour intends to lower the charges for the use of the canal. On the other hand, the freight charges on the railways connecting with the harbour remain excessive. A final disadvantage lies in the failure of recent efforts to arrange for the creation of a free harbour zone. It is an unfortunate fact that Hungary and Jugoslavia, formerly the most important countries using Braila for their transit traffic, should be withdrawing an ever-increasing quantity of their goods which are being shipped instead in the case of Jugoslavia, over the native ports, and in that of Hungary over Trieste and Fiume.

Jugoslavia

In the first half of the current year, the total weight of the goods imported over Jugoslavian harbours from abroad was 237,000 tons, the principal goods being coal, coke, salt, iron ore, oranges and lemons. The total exports during the same period amounted to 782,000 tons, consisting principally of wood, cement, bauxite, lignite, and copper.

Sweden

It is announced from Gävle that the exports over this Swedish harbour are at present extremely large and show every prospect of further improvement. The growth in the exports of iron ore are particularly important, and it is estimated that between 40,000 and 50,000 tons of ore are handled in the course of a week. Shipments of pulp, wooden goods, and iron are also developing in remarkable fashion.

Danzig

The number of vessels entering the harbour of Danzig during the months of August, September and October amounted to 439 with 252,000 n.r.t., 283 with 249,000 n.r.t., and 398 with 267,000 n.r.t. respectively. The number clearing during the same months were 458 vessels with 250,000 n.r.t., 381 vessels with 243,000 n.r.t., and 281 vessels with 267,000 n.r.t.

Poland

In the month of October the goods turnover of Gdingen suffered a further decline, falling from the September figure of 648,000 tons to 597,000 tons. Out of this total, 513,000 tons were sea-going exports.

It is officially announced that a new fishing harbour is to be constructed near Grossendorf at a point where the railway runs parallel to the shore just before entering Grossendorf Station. The harbour will be built straight out into the sea, and will cover a 500-metres-long stretch of the coast. It will consist of a straight eastern mole, 500 metres in length, and a curved western mole of 758 metres, making the shape of the basin that of a quarter circle, and leaving an entrance of about 60 metres breadth. The water enclosed will have an area of about 14 hectares, and a depth varying between three and five metres. In addition to the actual moles, the harbour will also contain three landing and mooring stages for the fishing boats, and a very much larger one for coastal shipping traffic. Special railway connections and sidings are to be constructed to join the harbour with the main line.

Netherlands East Indies

The rapid recovery in the traffic figures of Sourabaya, prophesied some months ago by the harbour authorities, is now coming to pass, and it is announced vessels of the Java-China-Japan lines entering the harbour empty, are all leaving with full cargoes. In the months of November and December alone, 160,000 tons of sugar are being shipped to British India. As the Indian and Chinese purchases from the plantations continue until February, the increase in shipments is likely to continue until then at least without abatement.

New Dredger for the Port of Wisbech.

Messrs. Priestman Bros., Ltd., of Hull, have recently obtained a contract for the construction of a new grab dredger for the Port of Wisbech.

The dredger will comprise a revolving grab crane mounted on a barge and operated by a Diesel engine, the same engine being used for propelling the barge. This barge will be 55 ft. long and 15 ft. wide, and its shallow draught will allow it to float in water of about 4 ft. 6 ins. deep when carrying a full load. The dredger will be able to deposit the dredged material either on the banks of the river or into the hold in the barge, which has a capacity of about 30 tons. The dredged material can then either be taken out of the hold by means of the grab or deposited from the barge through bottom doors.

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